JOHNS HOPKINS HOSPITAL
FEB 17 1920
Library.

THE BOSTON MEDICAL AND SURGICAL JOURNAL

GEORGE B. SHATTUCK, M.D., Editor
ALGERNON COOLIDGE, Jr., M.D., } Assistant Editors
CARROLL EVERETT EDSON, M.D., }

JOHNS HOPKINS HOSPITAL
FEB 17 1920
Library.

VOLUME CXXIX

JULY—DECEMBER, 1893

BOSTON
DAMRELL AND UPHAM
283 Washington Street
1893

R11
.B74

PRESS OF S. J. PARKHILL & COMPANY,
226 FRANKLIN STREET,
BOSTON.

3485H

CONTRIBUTORS TO VOLUME CXXIX.

ABBOTT, SAMUEL W., M.D.
ADAMS, Z. BOYLSTON, M.D.
BAKER, D. E., M.D.
BAKER, LUCIUS W., M.D.
BALLOCH, E. A., M.D., A.M.
BARNEY, CHARLES NORTON.
BLAKE, CLARENCE J., M.D.
BLODGETT, ALBERT N., M.D.
BOLAND, E. S., M.D.
BORDEN, W. C., M.D., U. S. A.
BOWEN, JOHN T., M.D.
BURRELL, HERBERT L., M.D.
CABOT, ARTHUR T., M.D.
CABOT, RICHARD C., M.D.
CHAPIN, WALTER H., M.D.
CHEEVER, DAVID W., M.D.
CLARKE, MAURICE D., M.D.
CLOUD, J. HOWARD, M.D.
COBB, FARRAR, M.D.
COBB, FREDERICK C., M.D.
COGGIN, DAVID, M.D.
COLLINS, JOSEPH, M.D.
COOLIDGE, ALGERNON, JR., M.D.
COUES, W. P., M.D.
COUNCILMAN, W. T., M.D.
CRAIGIN, GEORGE, M.D.
CREHORE, C. F., M.D.
CROSTON, JOHN F., M.D.
CUNNINGHAM, T. E., M.D.
CUSHING, H. W., M.D.
CUTLER, E. R., M.D.
DAVENPORT, B. F., M.D.
DAVENPORT, F. H., M.D.
DE BLOIS, THOMAS A., M.D.
DERBY, HASKET, M.D.
DEXTER, FRANKLIN, M.D.
DILLER, THEODORE, M.D.
DRAPER, PROF. F. W., M.D.
DURGIN, S. H., M.D.
DWIGHT, THOMAS, M.D., LL.D.
EDES, ROBERT T., M.D.
EDSON, CARROLL E., M.D.
ELIOT, GUSTAVUS, M.D., A.M.
ELLIOTT, J. W., M.D.
ERNST, HAROLD C., M.D.
FOLSOM, CHARLES F., M.D.
FORSTER, EDWARD J., M.D.
GALLOUPE, CHARLES W., M.D.
GAY, GEORGE W., M.D.
GERRISH, FREDERICK H., M.D.
GERSTER, PROF. ARPAD G., M.D.
GOLDTHWAIT, JOEL E., M.D.
GORDON, S. C., M.D.
GREEN, CHARLES M., M.D.
HARRINGTON, F. B., M.D.
HILL, J. C., M.D.
HILLS, WILLIAM B., M.D.
HIRST, BARTON COOKE, M.D.
HOLDEN, E. G., M.D.
HOMANS, JOHN, M.D.
HOPKINS, F. E., M.D.
HOWE, O. T., M.D.
HURD, E. P., M.D.
HURD, HENRY M., M.D.
JACK, EDWIN E., M.D.
JACK, FREDERICK L., M.D.
JACKSON, HENRY, M.D.
JACOBI, A., M.D.
JOHNSON, F. W., M.D.
JUDSON, A. B., M.D.
KENEFICK, T. E., M.D.
KING, ALFRED, M.D.
KINGMAN, RUFUS A., M.D.
KNAPP, PHILIP COOMBS, A.M., M.D.
KNIGHT, FREDERICK I., M.D.
LELAND, G. A., M.D.
LIEBMANN, GUSTAVE, M.D.
LOVETT, ROBERT W., M.D.
MARCY, H. O., M.D.
MARTIN, STEPHEN C., M.D.
MASON, A. LAWRENCE, M.D.
MAYS, THOMAS J., M.D.
McCOLLOM, J. H., M.D.
MERRILL, F. GORDON, M.D.
MINOT, JAMES J., M.D.
MONKS, GEORGE H., M.D.
MORRILL, F. GORDON, M.D.
MORSE, JOHN LOVETT, M.D.
MUNRO, JOHN C., M.D.
NICHOLS, JOHN T. G., M.D.
OSLER, PROF. WILLIAM, M.D.
OTIS, EDWARD O., M.D.
PECKHAM, FRANK E., M.D.
PHELPS, PROF. A. M., M.D.
PORTER, P. BRYNBERG, M.D.
POST, ABNER, M.D.
PUTNAM, CHARLES P., M.D.
PUTNAM, J. J., M.D.
RICHARDSON, MAURICE H., M.D.
ROTCH, PROF. T. M., M.D.
ROWE, G. H. M., M.D.
SCUDDER, CHARLES L., M.D.
SEARS, GEORGE G., M.D.
SEDGWICK, W. T., PH.D.
SHATTUCK, F. C., M.D.
SHATTUCK, GEORGE B., M.D.
SHERMAN, FRANK M., M.D.
SPEAR, DAVID DANA, M.D.
SPRAGUE, FRANK B., M.D.
STANDISH, MYLES, M.D.
STEPHENSON, F. B., M.D., U. S. N.
STONE, A. K., M.D.
TAYLOR, EDWARD WYLLYS, M.D.
THOMPSON, C. O., PH.G., M.D.
THORNDIKE, AUGUSTUS, M.D.
THORNDIKE, PAUL, M.D.
TOWNSEND, CHARLES W., M.D.
TUTTLE, ALBERT H., M.D.
VICKERY, H. F., M.D.
WALCOTT, H. P., M.D.
WALTON, GEORGE L., M.D.
WARREN, PROF. J. COLLINS, M.D.
WASHBURN, G. H., M.D.
WATSON, FRANCIS S., M.D.
WHITE, JAMES C., M.D.
WHITNEY, CHARLES M., M.D.
WILLIAMS, FRANCIS H., M.D.
WILLIAMS, HAROLD, M.D.
WILLIAMS, JACOB L., M.D.
WITHINGTON, C. F., M.D.
WOOD, PROF. H. C., M.D.
WORCESTER, A., A.M., M.D.
WYMAN, S. E., M.D.

3485
Hosp.

INDEX TO VOLUME CXXIX.

Abdominal Surgery. Abdominal hysterectomy for fibroids, with cases, Elliot, J. W., 57, 70; cases of removal of the appendix vermiformis between attacks of relapsing inflammation, Cabot, A. T., 89; a useful method of drainage in supra-pubic cystotomy, Cobb, F., 197; appendicitis from the point of view of the physician, Eliot, G., 269; the operative treatment of peritoneal tuberculosis, Conitzer, 282; hysterectomy for cancer of the cervix by continued abdominal and vaginal dissection, Richardson, M. H., 436, 444; intraperitoneal cystotomy, Harrington, F. B., 443; some abdominal operations, Richardson, M. H., 491; discussion on the treatment of appendicitis, Dennis, F. S., and others, 497; some cases of laparotomy, Haven, G., 541.

Abortion. A case of criminal abortion, Draper, F. W., 121.

Acquaintance, "The new acquaintance," 258.

Adams, Z. B. Apparatus for fracture of the humerus through or near the deltoid insertion, 198.

Addison's Disease. A study of Addison's disease and of the adrenals, Thompson, W. G., 171.

Alcohol. The therapeutic value of alcohol in pneumonia, 99; treatment of alcoholism by large doses of strychnia, 204; a case of sudden death in an inebriate, Hurd, E. P., 593.

Aldrich, W. H. Sequelæ of la grippe, 352.

Anick Cure. Dr. Reeves and the Anick cure, 428.

Anæmia. The causation of anæmia by uric acid, Haig, 76.

Anæsthesia. Anæsthetics at the London Hospitals, 203; a statement of some of the facts in regard to the origin of the practical application of anæsthesia in surgery, Williams, J. H., 383.

Anatomy. The need of agreement on the limits of the abdominal regions and a proposition for a new method of division, Gerrish, F. H., 10, 16; the association of American anatomists, 16; delineation of abdominal regions, Balloch, E. A., 16; an anomalous external iliac artery, autopsy report, Thorndike, P., 348, 351; recent progress in anatomy, Dwight, T., 539.

Annus Medicus, MDCCCXCIII, 653.

Anthrax faciei, Wyman, S. E., 413, 429.

Anthropometry. Anthropometrical descriptions, Bertillon, 452.

Apache. The vital statistics of an Apache Indian community, Borden, W. C., 5.

Aphasia. The localizing value of aphasia, Preston, G. W., 447.

Appendicitis. Discussion in Maine Medical Association, 43; cases of removal of the appendix vermiformis between attacks of relapsing inflammation, Cabot, A. T., 89; a possible cause for the presence of appendicitis, Crehore, C. F., 151; appendicitis from the point of view of the physician, Eliot, G., 269; salines in appendicitis, 331; the use of salines in appendicitis, Richardson, M. H., 335; appendicitis, Sanborn, G. H., 353; discussion on the treatment of appendicitis, Dennis, F. S., and others, 497; appendicitis, Worcester, A., 506, 535; the relation of the bacterium commune coli to appendicitis, Fowler, G. R., 549; salines in appendicitis, Gordon, S. C., 557.

Army. Improvements in the medical department of the army, 22.

Axtell. Carcinoma of the œsophagus, 230.

Ayres, D. The male catheter, with some observations upon the proper mode of introduction into the bladder, 498.

Bacteriology. The bacteriology of suppurative meningitis, Zorkendorfer, 51; phagocytosis, Ernst, H. C., 85, 96, 114; the bacteriology of human milk, 101; bacterial poisons, 146; the bacillus pyocyaneus pericarditidis, Ernst, H. C., 252; the bacteriology of diphtheria, 379.

Bagdad pharmacy, 358.

Baker, D. E. A case of extra-uterine pregnancy, 35.

Baker, L. W. A few cases of mild mental disturbance, 537.

Baker, S. Heterogenous personality, 399.

Balloch, E. A. Delineation of abdominal regions, 16.

Barney, C. N. Staining bacteria upon the slide without using a cover-glass, 579.

Bassford, S. J. Aids to success in medicine, 44.

Bates. The hypodermic use of nitro-glycerine in epileptic convulsions, 206.

Baths. Hot baths in Japan, 630.

Baumgarten, G. On a simple continued fever, 199.

Bernhardt. A case of bilateral brachial paralysis, 230.

Bertillon. Anthropometrical descriptions, 452.

Bibliography. Aitchison, R. S., a medical handbook for the use of practitioners and students, 146; Allen, Harte, Harlan and Van Harlingen, a handbook of local therapeutics, 122; Allen, S. A., the mastoid operation, 572; Anderson, W., Heath's practical anatomy, a manual of dissections, 572; Baker, W. M., and Harris, V. D., Kirke's hand-book of physiology, 122; Balch, L., a manual for Boards of Health and Health Officers, 473; Ballantyne, J. W., and Williams, J. D., the structures in the mesosalpinx: their normal and pathological anatomy, 45; Bartholow, R., cholera, its causes, symptoms, pathology and treatment, 379; Bastian, H. C., various forms of hysterical or functional paralysis, 401; Billings, J. S., ventilation and heating, 45; Boston City Hospital, annual report, 174; Browne, L., the throat and nose and their diseases, 425; Charaka-Samhita, 333; Credé and Leopold, G., the obstetric examination, a short guide for physicians, students of medicine, midwives and students in midwifery, 121; Currier, C. G., outlines of practical hygiene, adapted to American conditions, 571; Davis, J. R. A., an elementary text-book of biology, 572; De Sinety, treatment of sterility in the woman, 571; Dibble, F. L., vagaries of sanitary science, 73; Doyen, E., traitment chirurgical des affections inflammatoires et neoplastiques de l'uterus et de ses annexes; hysterectomie abdominale et vaginale; la castration totale par le vagin, 45; Field, G. P., a manual of diseases of the ear, 571; Flückiger, F. A., reactions, 602; Graham, D., recent developments in massage, 449; Gray, L. C., a treatise on nervous and mental diseases for students and practitioners of medicine, 544; Gould, G. M., the meaning and the method of life, a search for religion in biology, 571; Hampton, J. A., nursing, its principles and practice, 305; Hartmann, J., the creation of God, 305; Hayems, G., leçons de thérapeutique, 473; Hirst, B. C., human monstrosities, 18; Howkins, J. A., a physician's pocket chart-book, 449; Inebriety, the disease of inebriety from alcohol, opium and other narcotic drugs, its etiology, pathology, treatment and medico-legal relations, 254; International medical annual and practitioner's index, 377; Jewett, Charles, outlines of obstetrics, 652; Kelynack, T. N., a contribution to the pathology of the vermiform appendix, 473; Kleen, E., hand-book of massage, 253; Lea, A. S., the chemical basis of the animal body, an appendix to Foster's text-book of physiology, 304; Leonard, C. H., the physician's pocket day-book, 522; Lepage, fonctionnement de la maison d'accouchements baudelocque, clinique de la faculté, dirigée par le Prof. A. Pinard, 304; Loomis, A., lessons in physical diagnosis, 225; Lourneau, E., chirurgie des voies urinaires, 627; Mann, J. D., forensic medicine and toxicology, 303; Marcy, H. O., the anatomy and surgical treatment of hernia, 224; Marine Hospital Service, annual report, 402; Massachusetts State Board of Health, annual report, 573; Medical News visiting list for 1894, 545; Minnesota, third biennial report of vital statistics for the years 1890, 1891, 45; Mueller, A., on snake poison, its action and its antidote, 45; Pepper, W., a text-book of the theory and practice of medicine, 202; Piersol, G. A., text-book of normal histology, 572; Playfair, W. S., a treatise on the science and practice of midwifery, 545; Ramon y Cajal, S., nouvo concepto de la histologia de los centros nerviosos, 329; Richardson, A., the law of cremation, an outline of the law relating to cremation, ancient and modern, 425; Roberts, W., on the chemistry and therapeutics of uric acid, gravel and gout, 620; Robinson, W. F., electro-therapeutics of neurasthenia, 202; Rotunda Hospital report, 229; Schaeffer, O., medical pocket-atlases, obstetrics, Part I labor, 304, Schofield, A. T., elementary physiology for students, 202; Shoemaker, J. V., a practical treatise on materia medica and therapeutics with especial reference to the clinical application of drugs, 522; Simon, W., manual of chemistry, 401; Smith, A. J., and Davis, J. A., Napheys's modern therapeutics, medical and surgical, including the diseases of women and children, 602; Starling, E. H., elements of human physiology, 304; Starr, M. A., brain surgery, 521; Stockwell, G. A., cholera, its proper aspects and its management, 279; Strümpell, A., a text-book of medicine for students and practitioners, 449; Sykes, J. F. J., public health problems, 73; Talamon, Charles, appendicitis and perityphlitis, 425; Tuttle, A. H., the surgery and surgical anatomy of the ear, 545; Van Valsat, W. W., the chronic disorders of the digestive tube, 377; Wiedersheim, R., der bau des menschen als zeugniss für seine vergangenheit, 572; Willoughby, E. F., hand-book of public health and demography, 571; Wolffhügel, zur lehre vom luftwechsel, 571; Year-book of treatment, 146.

Bier. Ligature of the internal iliac artery for prostatic enlargement, 358.

Biography. Beard, F. C., 232; Bigelow, G. T., 180; Billings, L. F., 629; Blanche, A., 232; Bodge, J. H., 432; Branham, J. W., 232; Carriere, J., 128; Carter, C. F., 528; Charcot, J. M., 206, 208, 255, 259, 600; Clark, Andrew, 427, 500, 550; Coe, A. S., 432; Colt, E., 312; Cooper, H. C., 152; Dill, R. F., 152; Dupuis, T. R., 24; Durham, A., 229; Earles, C. W., 528; Fisher, C. H., 432; Fogg, D. S., 260, 358; Fordyce, B. A., 52; Frissell, J., 528; Gould, A. K., 284; Greely, A.

J., 260; Harlan, D., 104; Hewitt, W. M. G., 284; Hoffman, P., 605; Holmes, H., 528; Horr, O. A., 44; How, L. B., 312; Hunt, E. K., 501; Jenks, W. F., 258; Jones, C. M., 451; Lailler, 309; Lane, F., 180; Latimer, J. A., 180; Levich, J. J., 80; Logan, S. M., 580; Lyman, J. B., 24; Millard, H. B., 312; Miller, S. J. F., 208; Mitchell, J. D., 80; Moncrieff, D. S., 500; Mumford, S. E., 180; Olivieri, 427; Page, H. N., 336; Parke, T. H., 334, 336; Parsons, C. W., 284; Pinneo, T. S., 208; Rae, J., 128; Renton, J., 632; Rogers, S., 206; Salter, R. H., 152; Shea, A. F., 104; Sherman, T. F., 359, 360; Sourberbielle, 577; Stebbins, W. G., 282, 404, 428; Spencer, H. W., 630; Strong, C. P., 120, 169; Thwing, E. P., 52; Towles, W. B., 336; Tyndall, J., 575; Vought, W., 336; Wardwell, W. T. S., 24; Warren, E. Bey, 312; Wheeler, E. G., 632; White, W. T., 312; Wielobycki, S., 336.

Blake, C. J. Recent progress in otology, 511.

Blake, J. G. Gastric ulcer, 542.

Blodgett, A. N. Hallux valgus, 579.

Bokenham, T. J. The proteid poison of scarlet fever, 334.

Boland, E. S. Simultaneous fracture (interarticular) of both olecranon processes, 347, 349.

Bond, C. S. Probable origin and early symptoms of certain chronic diseases of the kidneys, 171.

Borden, W. C. The vital statistics of an Apache Indian community, 5.

Boston. Typhoid fever in Boston, McCollom, J. H., 295, 300; the sanitary condition of Boston, Durgin, S. H., 298, 300.

Bowen, J. T. Report on dermatology, 274, 325.

Breast. A case of diffuse hypertrophy of the breasts, Warren, J. C., 120.

Bronchitis. Pathogeny of bronchitis, 522.

Bull, C. S. Gouty retinitis, choro-retinitis and neuro-retinitis, 519.

Burns. Cause of death in burns, Hock, 22.

Burrell, H. L. Gun-shot wounds of the joints, 369.

Burrell, H. L., and Cushing, H. W. Recent progress in surgery, 466, 493.

Cabot, A. T. Cases of removal of the appendix vermiformis between attacks of relapsing inflammation, 89; a case of calculous pyelitis with complete suppression of urine for seven days; relieved by operation, 213.

Cabot, R. C. Leukocytosis as an element in the prognosis of pneumonia, 117.

Cancer. A foreign body mistaken for cancer, Frarier, 77; the direction of cancer treatment, Snow, H., 78; on the contagiousness and inoculability of cancer, 175; erysipelas and cancer, 177.

Cannabis Indica, Edes, R. T., 273.

Catalepsy. Local catalepsy, Mitchell, 206.

Cattell. The progress of psychology, 405.

Cerebellum. Abscess in the cerebellum, Kenefick, T. A., 144.

Charaka-Samhita, 303.

Charcot, Jean Martin, 255.

Charcot. Early nocturnal pain in syphilitic spinal disease, 309.

Charite. Boycotting the Charité, 607.

Cheever, D. W. Lectures on surgery, 1, 105, 129, 153, 209, 233, 313, 361, 409, 481, 529, 581, 633.

Chemistry. Recent progress in medical chemistry, Hills, W. B., 13; physiological chemistry as a part of medical education, 426.

Chest. An extensive injury of the chest, Howe, O. T., 441.

Chicago. Letters from Chicago, 429, 453.

Children. Infantile diabetes, 51; infantile insurance, 355; the general principles underlying all good methods of infant feeding, Roteh, T. M., 505; the importance of early attention to the disability caused by infantile paralysis, Judson, A. B., 614; report on the diseases of children, Rotch, T. M., 619.

China. Letter from China, Stephenson, F. B., 311.

Chloralose. Further experience in the use of chloralose, Morrill, F. G., 422.

Chlorosis. The intestinal origin of chlorosis, Forchheimer, F., 200.

Cholecystotomy, followed by cholecystenterostomy, Hurd, E. P., 392.

Cholera. Water filtration and cholera, 74; the cholera, 124.

Chorea. Experimental observations concerning the nature of chorea, Wood, H. C., 200; the microbic origin of chorea, Dana, C. L., 448.

Circulatory System. Heart-disease or kidney-disease, Tyson, 76; recent progress in thoracic disease, Sears, G. G., 229, 250; gonorrhœal myocarditis, Councilman, W. T., 252; variations in intensity and rhythm of the cardiac pulsations, 280; an anomalous external iliac artery, autopsy report, Thorndike, P., 349, 351; ligature of the internal iliac artery for prostatic enlargement, Bier, 358; sudden death due to the heart, Councilman, W. T., 457, 472; large doses of strychnine in pulmonary and cardiac diseases, Mays, T. J., 477; fragmentatio cordis, Oestreich, 577.

Cleveland, G. Address before Pan-American Medical Congress, 277.

Climate. Climate of Colorado, Williams, C. T., 576; remarks on sending patients away from home, Knight, F. I., 609, 623.

Cloud, J. H. A case of chronic tetanus followed by scarlet fever, 395.

Clouston. The mental symptoms of myxœdema, 310.

Cobb, F. A useful method of drainage in supra-pubic cystotomy, 197; the subcutaneous injection of salt solution a substitute for the intravenous method; report of cases and a simple apparatus, 325.

Cobb, F. C. A case of angioma of the nasal septum, 510.

Cocaine, Dodge, H., 354.

Code of ethics, Hart, 357.

Coggin, D. Green's operation for entropium, 23; hinc illæ lachrymæ, 465.

Coley, W. B. The treatment of malignant tumors by inoculation of erysipelas, 22.

Collins, J. A consideration of the paræsthetic neurosis, 264.

Colorado. Climate of Colorado, Williams, C. T., 576.

Conitzer. The operative treatment of peritoneal tuberculosis, 282.

Contagion. Extinction of contagious diseases, Wyman, W., 17; on the contagiousness and inoculability of cancer, 175.

Coolidge, A., Jr. Recent progress in laryngology, 562.

Cortial. Indigestion simulating cerebral lesions, 102.

Coues, W. P. Mastoid measurements, 299.

Councilman, W. T. Exhibition of pathological specimens, 41; gonorrhœal myocarditis, 252; sudden death due to the heart, 457, 472.

Country Doctor. Work required of the country doctor, Tuell, J. E., 44.

Craigin, G. A. A case of pregnancy complicated by pneumohia and empyæma, 270, 276.

Creasote in the treatment of tuberculosis, Whittaker, J. T., 199.

Crehore, C. F. A possible cause for the present prevalence of appendicitis, 151.

Cremation. The hygienic argument for cremation considered from a bacteriological standpoint, Stone, A. K., 433, 462.

Cretinism. Sporadic cretinism in the United States, Osler, W., 252.

Croston, J. F., and Clarke, M. D. A Cæsarean section for twin monstrosity, recovery, 610.

Culkin, J. R. Mechanical violence in the treatment of diphtheria, 502.

Cunningham, T. E. Puerperal eclampsia, 416, 421.

Cutaneous System. Dermal medication, Pudor, C. A., 42; report on dermatology, Bowen, J. T., 274, 325; the increasing prevalence of the itch, Stelwagon, 406; the treatment of epithelioma and the chancroid ulcers by topical applications, North, N. J., 469.

Cutler, E. R. Sectarianism in medicine, 158, 181.

Dana, C. L. Acromegaly, gigantism and facial hemihypertrophy, 423; the microbic origin of chores, with a case, 448.

Dana, I. T. The sequelæ of pneumonia, 43.

Dandridge, N. X. The surgical treatment of pulmonary cavities, 469.

Davenport, B. F. Recent progress in foods, drugs and articles of domestic use, 93.

Davenport, F. H. Report of progress in gynecology, 441.

Deafness, congenital, 450.

Death. Legislation relating to medical matters in Massachusetts, 174; improvements in the registration of the causes of death, 306; sudden death due to the heart, Councilman, W. T., 457, 472.

De Blois, T. A. Reducing the tonsils, 375, 376.

Deitrich. Lookout Mountain as a health resort, 452.

Dentistry. Discussion of the treatment of appendicitis, 497.

Dentistry. International dental congress, 282; the medical aspect of diseased teeth, 406.

Derby, H. On certain dangers attending the use of atropine, and the employment of a new mydriatic, 640.

Dercum, F. X. Optic neuritis, blindness, deafness and the knee-jerk, cerebellar disease, 422.

Dexter, F. An intestinal anomaly, 479.

Diabetes. Diabetes mellitus, Hersom, J. L., 42; infantile diabetes, 51; diet in glycosuria, 126; jambul in diabetes, Graeser, 549.

Digestive System. The need of agreement on the limits of the abdominal regions and a proposition for a new method of division, Gerrish, F. H., 10, 16; delineation of abdominal regions, Balloch, E. A., 16; discussion on appendicitis in Maine Medical Association, 43; how should the general practitioner deal with strangulated hernia? Gerster, A. G., 61, 66; lavage of the stomach, Pick, 77; indigestion simulating cerebral lesion, Cortial, 102; visceral phlebotomy, Jaccoud, 127; gastro-intestinal exhaustion, 150; a possible cause for the present prevalence of appendicitis, Crehore, C. F., 151; subphrenic abscess, with special reference to those cases which simulate pyo-pneumothorax, Mason, A. L., 186, 201, 217, 247; relation of dyspepsia to pulmonary tuberculosis, 228; appendicitis from the point of view of the physician, Eliot, G., 269; jaundice from mental emotion, 330; salines in appendicitis, 331; the use of salines in appendicitis, Richardson, M. H., 335; appendicitis, Sanborn, G. H., 353; cholecystotomy followed by cholecystenterostomy, Hurd, E. P., 392; fermentative dyspepsia, Flint, A., 471; an intestinal anomaly, Dexter, F., 479; gastric ulcer, Blake, J. G., 542; the action of the bacterium commune coli to appendicitis, Fowler, G. B., 549; a case of dysphagia with dilatation of the œsophagus and pneumatosis, Liebman, G., 559; removal of four inches of the rectum for cancer, anastomosis by means of the Murphy button, Marcy, H. O., 561; long-continued rectal alimentation, Maragliano, 576; œsophagotomy, with healing by first intention, Post, A., 642, 650.

Diller, T. The symptoms of senility in paralysis agitans, 558.

Diphtheria. The bacteriology of diphtheria, 379; differential diagnosis of diphtheria, Ernst, H. C., 455; diphtheria, tracheotomy, persistent and increasing dyspnœa, systematic curetting of the trachea, recovery, Boudler, C. L., 465; bacteriological diagnosis of diphtheria, 476; mechanical violence in the treatment of diphtheria, Culkin, J. W., 502.

Dislocation. Dislocation of the shoulder, Thomas, 102; a new method for the reduction of dislocation of the cervical vertebræ, Walton, G. L., 423; reduction of cervical dislocation; a successful case, Walton, G. L., 553.

Dispensary. Boston Dispensary, 382.

Dodge, H. Cocaine, 354.

Dolan. Rights and duties of medical examiners in the investigation of certain cases of homicide, 472.

Donovan, J. A. Septic poisoning, a fatal case, 44.

Draper, F. W. A case of criminal abortion, 121.

Drugs. Recent progress in foods, drugs and articles of domestic use, Davenport, B. F., 93; the misuse of drugs in modern practice, Nichols, J. T. G., 239, 261, 292; "the misuse of drugs in modern practice," Johnson & Johnson, 438.

Durgin, S. H. The sanitary condition of Boston, 298, 300.

Dwight, T. Recent progress in anatomy, 539.

Ear. Mastoid measurements, Coues, W. P., 299; congenital deafness, 450; recent progress in otology, Blake, C. J., 511; further observations on removal of the stapes, Jack, F. L., 590.

Edes, R. T. Cannabis indica, 273.

Editorials. Organic extracts; the new departure in neurological therapeutics, 19; Ehrlich's urine test for typhoid fever, 46; the certification of registering thermometers, 46; the United States mail a partner of evil quacks, 47; consanguineous marriages, 74; water filtration and cholera, 74; medical exhibits at the World's Fair, 98; the therapeutic value of alcohol in pneumonia, 99; causes of longevity, 122; the milk-supply of Boston, 123; the cholera, 124; bacterial poisons, 146; the only original Jacobs, 147; postponement of the International Medical Congress, 148; legislation relating to medical matters in Massachusetts, 174; annual report of the Bos-

ton City Hospital, 174; on the contagiousness and inoculability of cancer, 175; the Pan-American Medical Congress, 202; anæsthetics at the London hospitals, 203; treatment of alcoholism by large doses of strychnia, 204; the mutual interest of the medical profession and insurance companies in the prolongation of life, 225; relation of dyspepsia to pulmonary tuberculosis, 228; Texas cattle fever and the mode of its transmission, 254; Jean Martin Charcot, 255; the tenement-houses of Boston, 256; auto-intoxications in mental diseases, 279; variations in intensity and rhythm of the cardiac pulsations, 280; improvements in the registration of causes of death, 306; the Pharmacopœia of 1890, 307; misdirected satire, 308; registration of the still-born, 330; jaundice from mental emotion, 330; salines in appendicitis, 331; twenty-first annual report of the local government board 1891-92; supplement containing the report of the medical officer, 355; infantile insurance, 355; "medical education in America," 378; the bacteriology of diphtheria, 379; "greater love hath no man than this," 402; annual report of the marine-hospital service, 402; action of iodoform on pus microbes and on the leucocytes, 403; physiological chemistry as a part of medical education, 426; may typhoid fever arise *de novo*? 426; serotherapy, 449; congenital deafness, 450; the good fortune of the Massachusetts Medical Benevolent Society, 450; the water-supply of London, 452, 474; bacteriological diagnosis of diphtheria, 476; the late Sir Andrew Clark, 499; vertical handwriting, 500; pathogeny of bronchitis, 522; epidemic influenza, 524; foot-ball, 524; a temperate word for foot-ball, 546; enteric fever in the Tees Valley, 546; the twenty-fourth annual report of the Massachusetts State Board of Health for the year 1892, 573; prevention of tuberculosis, 574; epidemic influenza, 603; the administration of hospitals for the insane in New York, 603; the pathogeny of bronchitis, 627; Annus Medicus, MDCCCXCIII, 653.

Education. Improvements in the medical department of the army, 22; the value of reading as a source of professional information, Mitchell, A., 43; the relation of hospitals to medical education, Hurd, H. M., 141; medical education in the United States, Warren, J. C., 285; "medical education in America," 378; physiological chemistry as a part of medical education, 426; the results of too many medical schools, Pepper, W., 501; report of the committee on the Harvard Medical School, 514; medical teaching in Germany, Withington, C. F., 585, 596.

Eliot, G. Appendicitis from the point of view of the physician, 269; the treatment of enteric fever, 497.

Elliot, J. W. Abdominal hysterectomy for fibroids, with cases, 57, 70.

Epidemic influenza, 524.

Epilepsy. The hypodermic use of nitro-glycerine in epileptic convulsions, Bates, 206; late epilepsy, 578.

Ernst, H. C. Phagocytosis, 85, 96, 114; the bacillus pyocyaneus pericarditidis, 252; differential diagnosis of diphtheria, 455.

Erysipelas. A consideration of erysipelas occurring during the puerperium, Galloupe, C. W., 166; erysipelas and cancer, 177.

Experts. Medical witnesses and expert testimony, Hammond, 49.

Extra-Uterine Pregnancy. A case of extra-uterine pregnancy, Baker, D. E., 35; cases of extra-uterine pregnancy, Townsend, C. W., 438, 444.

Eye. Green's operation for entropium, Coggin, D., 23; lymphoma of the conjunctiva, Goldziehei, 50; cryptophthalmus, Fuchs, 50; legislation for the prevention of blindness from ophthalmia neonatorum, 258; the eye symptoms of cerebro-spinal meningitis, Randolph, 333; atrophy of the optic nerve following iodoform poisoning, Vaiude, 405; fine lilæ lachryme, Coggin, D., 465; the relation of the patellar-tendon reflex to some of the ocular reflexes found in general paralysis of the insane, Harlan, G. C., 517; clinical history of a case of spindle-celled sarcoma of the choroid with a study of the microscopic condition of the growth, Oliver, C. A., 518; sarcoma of the choroid, sarcoma of the eyelid, Gruening, E., 518; tumor of the iris, probably tubercular, Harlan, G. C., 518; reflections upon a disastrous case of ophthalmia neonatorum, Randall, B. A., 518; clinical notes on some refractive and muscular cases, Milliken, B. L., 518; several cases in which the vertical diplopia test proved untrustworthy, Theobald, S., 519; an additional note in reference to the case, useful vision maintained by means of a totally dislocated lens, heretofore referred to the society, Theobald, S., 519; a series of wools for the ready detection of color blindness, Oliver, C. A., 519; gouty retinitis, choro-retinitis and neuro-retinitis, Bull, C. S., 519; retinitis punctata albescens, Standish, M., 520; removal of hard cataract by suction, Howe, L., 520; the artificial ripening of cataract, Jackson, E., 520; a case of traumatic dislocation of the iris under the unbroken conjunctiva, Knapp, H., 523; removal of steel from the vitreous with the electro-magnet, Holt, E. E., 543; a permanent magnet for use in removing foreign bodies from the cornea, Johnson, W. B., 543; suppression of the visual image, Johnson, W. B., 543; a case of congenital cyst of the orbit with anophthalmus, Harlan, G. C., 544; restoration of the upper eyelid by means of a flap taken from the cheek, 544; a case of recurrent paralysis of the oculo-motor nerve, Jack, E. E., 617, 624; on certain dangers attending the use of atropine and the employment of a new mydriatic, Derby, H., 640; recent progress in ophthalmology, Standish, M., 643.

Fair. Medical exhibits at the World's Fair, 98; the State Board of Health exhibit at Chicago, 125.

Faith Cure. Some results of faith cure, 205.

Fast. A prolonged fast, 550.

Fever. On a simple continued fever, Baumgarten, G., 199; a means of relief in hay fever, 229.

Ferguson, E. D. An additional note on nephrotomy and nephrectomy, 469.

Field, M. D. Detention hospitals for the insane, 400.

Filipovich. A new diagnostic sign in typhoid fever, 429.

Finder, W. Researches on the efficiency of vaccina after typhoid fever, 498.

Fisher, E. D. Congenital cerebral hemiplegia with autopsy, 446.

Flint, A. Fermentative dyspepsia, 471.

Food. Recent progress in foods, drugs and articles of domestic use, Davenport, B. F., 93; the general principles underlying all good methods of infant feeding, Roteh, T. M., 505.

Foot-ball, 524; a temperate word for foot-ball, 546.

Forchheimer, F. The intestinal origin of chlorosis, 200.

Fowler, G. R. The relation of the bacterium commune coli to appendicitis, 549.

Fractures. A method for applying pressure to the seat of a fracture for the purpose of bringing the bony fragments into accurate apposition and retaining them there until consolidation has taken place, Monks, G. H., 63, 73; simultaneous fracture (intra-articular) of both olecranon processes, Boland, E. S., 347, 351.

Frarier. A foreign body mistaken for cancer, 77.

Fuchs. Cryptophthalmus, 50.

Gallant and Coleman. Persistent singultus relieved by lavage of the stomach, 429.

Galloupe, C. W. A consideration of erysipelas occurring during the puerperium, 166.

Ganglion, Jordan, 230.

Gangrene. The pathology, symptoms and treatment of gangrene, 277.

Gastric ulcer, Blake, J. G., 542.

Gay, G. W. Tracheotomy and intubation at the Boston City Hospital, 388; strangulated hernia, 637, 646.

Generative System. Treatment of loss of sexual power by ligation of veins, King, A., 36; the treatment of prostatic hypertrophy, Gerrish, F. H., 44; abdominal hysterectomy for fibroids, with cases, Elliot, J. W., 57, 70; the treatment of prostatitis by ichthyol, 77; the non-operative treatment of salpingo-ovaritis, Shoemaker, 126; hysterectomy for cancer of the cervix by combined abdominal and vaginal dissection, Richardson, M. H., 436; report of progress in gynecology, Davenport, F. H., 441; a case of ovarian tumor; a case of fibroid of the uterus, Mixter, S. J., 445; an epidemic of priapism, Meynier, 549; cancer of the uterus, Richardson, M. H., 567; two cases of acquired complete atresia of the vagina, Kingman, R. A., 615; a peculiar case of acquired atresia of the external os uteri, Hirst, B. C., 616.

Gerrish, F. H. The need of agreement on the limits of the abdominal regions and a proposition for a new method of division, 10, 16; the treatment of prostatic hypertrophy, 44.

Gerster, A. G. How should the general practitioner deal with strangulated hernia? 61, 66.

Giles. The vomiting of pregnancy, 206.

Goldthwait, J. E. Forcible correction of angular deformities of the knee with a report of cases, 242; the treatment of hallux valgus, 533, 542.

Goldziehel. Lymphoma of the conjunctiva, 50.

Gordon, S. C. Salines in appendicitis, 557.

Gorilla. A Chesterfield gorilla," 526.

Gout. Rare forms of gout and rheumatism, Grant, J. A., 497.

Graeser. Jambul in diabetes, 549.

Granger, W. D. Voluntary commitment of the insane to asylums, 497.

Grant, J. A. Rare forms of gout and rheumatism, 497.

"Greater love hath no man than this," 402.

Green, C. M. Recent progress in obstetrics, 118.

Grippe. Sequelæ of la grippe, Aldrich, W. H., 352.

"Growing Pains." 177.

Gruening, E. Sarcoma of the choroid, 518; sarcoma of the eyelid, 518.

Gun-shot Wounds. Trephining for pistol-wounds, von Bergmann, 77; gun-shot wounds of the joint, Burrell, H. L. 369.

Gynecology. Report of progress in gynecology, Davenport, F. H., 441.

Hæmaturia. The significance of hæmaturia, Smith, C. D., 44.

Haig. The causation of anæmia by uric acid, 76.

Hallux valgus, Blodgett, A. N., 579.

Hamburg. Letter from Hamburg, Nash, G. W., 78.

Hammond, C. M. Progressive muscular atrophy, 421.

Hammond, Judge. Medical witnesses and expert testimony, 49.

Harlan, G. C. The relation of the patellar-tendon reflex to some of the ocular reflexes found in general paralysis of the insane, 517; tumor of the iris, probably tubercular, 518; a case of congenital cyst of the orbit with anophthalmus, 544.

Harrington, F. B. A case of acute septicæmia, 169; intra-peritoneal cystotomy, 443.

Hart, E. Visceral phlebotomy, 127.

Hart, E. Dr. Hart's impressions of the medical profession of America, 149; on the "code," 357.

Haven, G. Some cases of laparotomy, 541.

Hay Fever. A means of relief in hay fever, Ferber, 229.

Head. Fracture and injuries to the head, Spear, D. D., 300.

Holt-Stroke treated by chloroform, Koerfer, 179.

Hernia. How should the general practitioner deal with strangulated hernia? Gerster, A. G., 61, 66; strangulated hernia, Gay, G. W., 637, 646.

Herrick. A peculiar cause for urethral hæmorrhage, 333.

Hersom, J. L. Diabetes mellitus, 42.

Heterogeneous personality, Baker, S., 399.

Hill, J. C. Tracheotomy in a case of empyema following pneumonia, 619.

Hills, W. B. Recent progress in medical chemistry, 13.

Hip-Joint. A case of hysterical hip-joint successfully treated by hypnotism, Peckham, F. E., 419; bloodless amputation at the hip-joint, report of cases operated on by the author's method, Wyeth, J. A., 471.

Hirst, B. C. A peculiar case of acquired atresia of the external os uteri, 616.

Hoch. Cause of death in burns, 22.

Holt, E. E. Removal of steel from the vitreous with the electro-magnet, 543.

Homans, J. The remarkable effects of divulsion of the urethra, 641.

Hopkins, F. E. A case of foreign body impacted in the larynx, 417.

Horse hair in minor surgery, Thompson, C. O., 345, 351.

Hospitals. The relation of hospitals to medical education, Hurd, H. M., 141; Boston City Hospital, annual report, 174; isolating wards and hospitals for infectious diseases, Rowe, G. H. M., 385; detention hospitals for the insane, Field, M. D., 400.

Howe, O. T. An extensive injury of the chest, 441; a bad family record, 562.

Howe, L. Removal of hard cataract by suction, 520.

Hurd, E. P. Cholecystotomy followed by cholecysteuterostomy, 382; a case of sudden death in an inebriate, 593.
Hurd, H. M. The relation of hospitals to medical education, 141.
Hygiene, Health and Boards of Health. The State Board of Health exhibit at Chicago, 125; report of the committee appointed to secure from the legislature improved sanitary legislation, 472; Massachusetts State Board of Health, annual report, 1892, 573.
Hypnotism. A case of hysterical hip-joint successfully treated by hypnotism, Peckham, F. E., 419.
Indians. The vital statistics of an Apache Indian community, Borden, W. C., 5.
Infection. Isolating wards and hospitals for infectious diseases, Rowe, G. H. M., 385.
Influenza. Epidemic influenza, 603.
Insane. Voluntary commitment of the insane to asylums, Granger, W. D., 497.
Instruments and Apparatus. A simple substitute for the Leiter coil, Sprague, F. B., 93; a useful method of drainage in supra-pubic cystotomy, Cobb, F., 197; apparatus for fracture of the humerus through or near the deltoid insertion, Adams, Z. B., 198; the subcutaneous injection of salt solution, a substitute for the intravenous method; report of cases and a simple apparatus, Cobb, F., 325; a new pedodynamometer, Krauss, W. C., 446; the male catheter, Ayres, D., 498; a modification of the long traction splint for hip disease, designed to provide a light apparatus for little children, Thorndike, A., 540.
Insurance. Infantile insurance, 355.
International Medical Congress. Postponement of the International Congress, 148.
Intubation. Intubation of the larynx in private practice, results of seventy-eight cases, Whitney, C. M., 341, 350; some more intubation statistics, Stanton, R. J., 606.
Iodoform. Action of iodoform on pus microbes and on the leukocytes, 403; atrophy of the optic nerve following iodoform poisoning, Valude 405.
Itch. The increasing frequency of the itch, Stelwagon, 406.
Jack, E. L. A case of recurrent paralysis of the oculo-motor nerve, 617, 624.
Jack, F. L. Further observations on removal of the stapes, 590.
Jackson, E. The artificial ripening of cataract, 520.
Jackson, H. The complications of scarlet fever as observed in fifty cases, 162, 172.
Jakowski. Ætiology of pleuritis, 150.
Jambul in diabetes, Graeser, 549.
Japan. Hot baths in Japan, 630.
Jaundice. Jaundice from mental emotion, 330.
Jenks, W. F. The William F. Jenks memorial prize, 258.
Johnson, F. W. Pregnancy in the left horn of the uterus, simulating extra-uterine pregnancy: laparotomy, 643.
Johnson, W. B. A permanent magnet for use in removing foreign bodies from the cornea, 543; suppression of the visual image, 543.
Johnson & Johnson. "The misuse of drugs in modern practice," 430.
Joints. Gun-shot wounds of the joint, Burrell, H. L., 369.
Jordan. Ganglion, 230.
Josserand. Hysterical hæmatemesis, 49.
Judson, A. B. The importance of early attention to the disability caused by infantile paralysis, 614.
Jurisprudence. The pathological conditions of the heart which result in sudden death, Councilman, W. T., 457, 472; rights and duties of medical examiners in the investigation of certain cases of homicide, Dolan, 472.
Kenefick, T. A. Abscess in the cerebellum, 144.
King, A. Treatment of loss of sexual power by ligation of veins, 36.
Kingman, R. A. Two cases of acquired complete atresia of the vagina, 615.
Knapp, H. A case of traumatic dislocation of the iris under the unbroken conjunctiva, 5:0.
Knapp, P. C. Simulation in traumatic nervous diseases, 318; observations in traumatic nervous diseases, 448.
Knee. Forcible correction of angular deformities of the knee, with a report of cases, Goldthwait, J. E., 242.
Knight, F. I. Remarks on sending patients away from home, 609, 623.
Koerfer. Treatment of heat-stroke by chloroform, 179.
Krauss, W. C. A new pedodynamometer, 446; observations in a case of myxœdema, 447.
Laborde, M. J. V. Lingual traction in cases of suspended respiration, 283.
Lailler. Doctor Lailler, 309.
Lane. An operation for cleft palate, 102.
Laryngology. Recent progress in laryngology, Coolidge, A., Jr., 262.
Lavista, R. The pathology, symptoms and treatment of gangrene, 277.
Legislation. Legislation relating to medical matters in Massachusetts, 174; legislation for the prevention of blindness from ophthalmia neonatorum, 258.
Leland, G. A. Recurrent tonsillitis, 373, 376, 590.
Leukocytosis as an element in the prognosis of pneumonia, Cabot, R. C., 117.
Liebman, G. A case of dysphagia with dilatation of the œsophagus and pneumatosis, 559.
Life. The mutual interest of the medical profession and insurance companies in the prolongation of life, 225.
Litholapaxy. A case of litholapaxy, Sherman, F. M., 324.
Liver. A case of congenital hernia of the liver, Warren, J. C., 121; venous murmur in cirrhosis of the liver, Deitrich, 452.
Lloyd, J. H., and Riesman, J. Infectious endocarditis with general septicæmia complicated with multiple neuritis, 446.
London. The water-supply of London, 452, 474.
Longevity. Causes of longevity, 122.
Lookout Mountain as a health resort, Deitrich, 452.
Loomis. Address before Association of American Physicians, 144.
Lovett, R. W. The treatment of sensitive spines, 33, 40.
Lund, F. B. A study of tendon suture, a few cases of interest, 566.
Lyman, H. M. Address before the American Neurological Association, 395.
McCollom, J. H. Typhoid fever in Boston, 295, 300.
McLean, D. Surgical and pathological memoranda, 497.
Madrid Academy of Medicine Prize, 357.
Maragliano. Long-continued rectal alimentation, 576.
Marcy, H. O. Removal of four inches of the rectum for cancer; anastomosis by means of the Murphy button, 561.
Marine-Hospital Service, annual report, 402.
Mark Twain. Misdirected satire, 308.
Marriage. Consanguineous marriages, 74.
Martin, S. C. Preliminary report upon investigations concerning the contagium vivum of small-pox, 589.
Martini. Venous murmur in cirrhosis of the liver, 452.
Mason, A. L. Subphrenic abscess with special reference to those cases which simulate pyo-pneumothorax, 186, 201, 217, 247.
Massachusetts Medical Benevolent Society, 450.
Mastoid measurements, Coues, W. P., 299.
Materia Medica and Therapeutics. Organic extracts, the new departure in neurological therapeutics, 19; lectures on therapeutics, Wood, H. C., 25; the treatment of prostatitis by ichthyol, 77; the therapeutic value of alcohol in pneumonia, 99; the habitual use of opium, Nightingale, 102; quinine blindness, Pischl, 178; creasote in the treatment of tuberculosis, Whittaker, J. T., 199; anæsthetics at the London hospitals, 203; treatment of alcoholism by large doses of strychnia, 204; the hypodermic use of nitroglycerine in epileptic convulsions, Bates, 206; the misuse of drugs in modern practice, Nichols, J. T. G., 239, 261, 292; cannabis indica, Edes, R. T., 273; pharmacopœia of 1890, 307; the subcutaneous injection of salt solution a substitute for the intravenous method: report of cases and a simple apparatus, Cobb, F., 325; salines in appendicitis, 331; the use of salines in appendicitis, Richardson, M. H., 335; cocaine, Dodge, H., 354; Bagdad pharmacy, 358; report on therapeutics, Williams, F. H., 395; action of iodoform on pus microbes and on the leucocytes, 403; large doses of strychnine in pulmonary and cardiac diseases, Mays, T. J., 477; further experience in the use of chloralose, Morrill, F. G., 492; jambul in diabetes, Graeser, 549; salines in appendicitis, Gorden, s. C., 557; discussion on therapeutic instability, illustrated by pneumonia and typhoid fever, with special reference to dietetics and specifics, cardiac and general stimulants and antipyretics, 568; a possible case of maternal impression, Morse, J. L., 562.
Mays, T. J. Large doses of strychnine in pulmonary and cardiac diseases, 477.
Measles. Is German measles (Rotheln or Rubella) an independent disease? Putnam, C. P., 30, 37.
Medical Profession. Dr. Hart's impressions of the medical profession in America, 149.
Metatarsalgia, 125.
Meynier. An epidemic of priapism, 549.
Milk. The bacteriology of human milk, 101; the milk-supply of Boston, 123; milk-supply of cities, 177; an investigation of an epidemic of typhoid fever in the city of Springfield, Mass., due to infected milk, Sedgwick, W. T., and Chapin, W. H., 485; an investigation of an epidemic of typhoid fever in Somerville, Massachusetts, due to infected milk, Sedgwick, W. T., 489.
Milliken, B. L. Clinical notes on some refractive and muscular cases, 518.
Mills, C. K. Lesion of the thalamus and internal capsule, 446.
Mind. Auto-intoxications in mental diseases, 279; detention hospitals for the insane, Field, M. D., 406; the temperature in general paralysis of the insane, Peterson, F., 400; a few cases of mild mental disturbance, Baker, L. W., 537; the administration of hospitals for the insane in New York, 603; the increase of insanity in England, Rayner, 606.
Mitchell, A. The value of reading as a source of professional information, 43.
Mixter, S. J. A case of ovarian tumor; a case of fibroid of the uterus, 445.
Monks, G. H. A method for applying pressure to the seat of a fracture for the purpose of bringing the bony fragments into accurate apposition and retaining them there until consolidation has taken place, 73.
Morrill, F. G. Further experience in the use of chloralose, 492.
Morse, J. L. A possible case of maternal impression, 562.
Myxœdema. Two cases of myxœdema successfully treated by thyroid preparations, Putnam, J. J., 222; three cases of myxœdema, Starr, M. A., 223; the mental symptoms of myxœdema, Clouston, 310.
Nash, W. G. Hæmoglobinuria complicating pneumonia, 50.
Nash, G. W. Letter from Hamburg, 78.
Nervous System. Organic extracts, the new departure in neurological therapeutics, 19; hæmorrhage in the centrum ovale, 50; the bacteriology of suppurative meningitis, Zorkendorfer, 51; indigestion simulating cerebral lesion, Cortial, 102; abscess in the cerebellum, Kenefick, T. A., 144; experimental observations concerning the nature of cholera, Wood, H. C., 200; the hypodermic use of nitro-glycerine in epileptic convulsions, Bates, 206; local catalepsy, Mitchell, 206; a case of bilateral brachial paralysis, Bernhardt, 230; a consideration of the paræsthetic neurosis, Collins, J., 264; simulation in traumatic nervous diseases, Knapp, P. C., 318; the study of the anatomy of the central nervous system, Taylor, E. W., 322; the eye symptoms of cerebro-spinal meningitis, Randolph, 333; the temperature in general paralysis of the insane, Peterson, F., 400; puerperal eclampsia, Cunningham, T. E., 416, 421; progressive muscular atrophy, Hammond, C. M., 421; optic neuritis, blindness, deafness and the knee-jerk in cerebellar disease, Dercum, F. X., 422; a new method for the reduction of dislocation of the cervical vertebræ, Walton, G. L., 423; acromegaly, gigantism and facial hemihypertrophy, Dana, C. L., 423; thyroidectomy in the treatment of Graves' disease, 424; persistent singultus relieved by lavage of the stomach, 429; tabes and syphilis, Sachs, H., 445; a new pedodynamometer, Krauss, W. C., 446; infectious endocarditis with general septicæmia complicated with multiple neuritis, Lloyd, J. H., and Riesman, D., 446; tumor of the angular gyrus, Walton, G. L., 446; congenital cerebral hemiplegia with autopsy, Fisher, E. D., 446; lesion of the thalamus and internal capsule, Mills, C. K., 446; tumor of the optic thalamus, Sinkler, W., 447; the localizing value of aphasia, Preston, G. W., 447; spinal neurasthenia, Weber, L., 447; observations in a case of myxœdema,

Krauss, W. C., 447; simulations in traumatic nervous diseases, Knapp, P. C., 448; the microbic origin of chorea, Dana, C. L., 448; is acute poliomyelitis uncommonly prevalent this season? Putnam, J. J., and Taylor, E. W., 509; the relation of the patellar tendon reflex to some of the ocular reflexes found in general paralysis of the insane, Harlan, G. C., 517; reduction of cervical dislocation, a successful case, Walton, G. L., 553, 565; the symptoms of senility in paralysis agitans, Diller, T., 558; temperature in general paralysis of the insane, 577; memorial of Professor Charcot, 600; a case of generalized paresis ending in complete recovery, Seguin, E. C., 601; the importance of early attention to the disability caused by infantile paralysis, Judson, A. B., 614; a case of recurrent paralysis of the oculo-motor nerve, Jack, E. E., 617, 624.

Nichols, J. T. G. The misuse of drugs in modern practice, 239, 261, 292.

Nightingale. The habitual use of opium, 102.

North, N. J. The treatment of epithelioma and the chancroid ulcers by topical application, 469.

Nose. A case of angioma of the nasal septum, Cobb, F. C., 510.

Numbers. The space relation of numbers, 229.

Nurses. An architectural competition for nurses, 178.

Obstetrics. Recent progress in obstetrics, Green, C. M., 118.

Oestreich. Fragmentatio cordis, 577.

Œsophagus. Carcinoma of the œsophagus, Axtell, 230; œsophagotomy, with healing by first intention, Post, A., 642, 650.

Oliver, C. A. Clinical history of a case of spindle-celled sarcoma of the choroid with a study of the microscopic condition of the growth, 518; a series of wools for the ready detection of color-blindness, 519.

Opium. The habitual use of opium, Nightingale, 102; a protest against the opium commission, 406.

Orthopraxy. The treatment of sensitive spines, Lovett, R. W., 33, 49; forcible correction of angular deformities of the knee, with a report of cases: Goldthwait, J. E., 242; the treatment of hallux valgus, Goldthwait, J. E., 533; hallux valgus, Blodgett, A. N., 579.

Osler, W. Tuberculous pleurisy, 55, 81, 109, 135; sporadic cretinism in the United States, 252.

Otis, E. O. Pulmonary tuberculosis with especial reference to its prophylaxis, hygienic and climatic treatment, 337, 352, 361.

Palate. An operation for cleft palate, Lane, 102.

Paris. Letter from Paris, 259, 502.

Parotid. Tumor of the parotid, Richardson, M. H., 567.

Peabody, G. L. Accepted teachings of to-day (on therapeutic instability, etc.), 570.

Peckham, F. E. A case of hysterical hip-joint successfully treated by hypnotism, 419.

Pedagogics. The Pan-American Medical Congress, section for medical pedagogics, 328.

Pepper, W. Address before Pan-American Medical Congress, 278; the result of too many medical schools, 501.

Peterson, F. The temperature in general paralysis of the insane, 400.

Peterson and Langdon. Temperature in general paralysis of the insane, 577.

Phagocytosis, Ernst, H. C., 85, 96, 114.

Pharmacopœia of 1890, 307.

Phelps, A. M. Tenotomy, 194.

Phisalix and Bertrand. Toxicity of the blood of the common toad, 527.

Pick. Lavage of the stomach, 77.

Pischl. Quinine blindness, 178.

Placenta prævia at the Boston Lying-in Hospital, Townsend, C. W., 612.

Pleurisy. Tuberculous pleurisy, Osler, W., 53, 81, 109, 135; ætiology of pleuritis, Jakowski, 150.

Pneumonia. The sequelæ of pneumonia, Dana, J. T., 43; hæmoglobinuria complicating pneumonia, Nash, W. G., 50; the therapeutic value of alcohol in pneumonia, 99; leukocytosis as an element in the prognosis of pneumonia, Cabot, R. C., 117.

Pneumothorax. Cases of pneumothorax, Vickery, H. F., 64, 70.

Poisons. Poisoning by vanilla, White, J. C., 440.

Porteous, J. G. Prevention of disease, 469.

Post, A. Œsophagotomy, with healing by first intention, 642, 650.

Pregnancy, affections connected with. A case of extra-uterine pregnancy, Baker, D. E., 35; recent progress in obstetrics, Green, C. M., 118; a consideration of erysipelas occurring during the puerperium, Galloupe, C. W., 166; the vomiting of pregnancy, Giles, 206; a case of pregnancy, complicated by pneumonia and empyema, Craigin, G. A., 270, 276; puerperal eclampsia, Cunningham, T. E., 316, 421; a Cæsarean section for twin monstrosity, recovery, Croston, J. F., and Clarke, M. D., 610; placenta prævia at the Boston Lying-in Hospital, Townsend, C. W., 612; pregnancy in the left horn of the uterus, simulating extra-uterine pregnancy: laparotomy, Johnson, F. W., 643.

Preston, G. W. The localizing value of aphasia, 447.

Prevention of disease, Porteous, J. G., 469.

Prizes. An architectural competition for nurses, 178; the William F. Jenks memorial prize, 258; Madrid Academy of Medicine prizes, 357; the Samuel D. Gross prize, 549.

Pudor, G. A. Dermal medication, 42.

Putnam, C. F. Is German measles (Rotheln or Rubella) an independent disease? 30, 37.

Putnam, J. J. Two cases of myxœdema treated by thyroid preparations, 222; thyroidectomy in the treatment of Graves's disease, 424.

Putnam, J. J., and Taylor, E. W. Is acute poliomyelitis unusually prevalent this season? 509.

Psychology. The progress of psychology, Cattell, 405.

Quacks. The United States mails a partner of evil quacks, 47.

Quarantine *vs.* sanitation, Sedgwick, W. T., 193.

Quinine. Quinine blindness, Pischl, 178.

Randall, B. A. Reflections upon a disastrous case of ophthalmia neonatorum, 518.

Randolph. The eye symptoms of cerebro-spinal meningitis, 333.

Rayner. The increase of insanity in England, 606.

Recent Progress. Medical chemistry, Hills, W. B., 13; foods, drugs, and articles of domestic use, Davenport, B. F., 93; obstetrics, Green, C. M., 118; thoracic disease, Sears, G. C., 220; dermatology, Bowen, J. T., 274, 325; therapeutics, Williams, F. H., 395; surgery, Burrell, H. L., and Cushing, H. W., 466, 493; otology, Blake, C. J., 511; anatomy, Dwight, J., 539; laryngology, Coolidge, A., Jr., 562; genito-urinary surgery, Watson, F. S., 595; children, Roteh, T. M., 619; ophthalmology, Standish, M., 643.

Reeves, J. E. Dr. Reeves and the Amick Cure, 428.

Registration. Improvements in the registration of the causes of death, 306; registration of the still-born, 330.

Respiratory System. The sequelæ of pneumonia, Dana, J. T., 43; hæmoglobinuria complicating pneumonia, Nash, W. G., 50; tuberculous pleurisy, Osler, W., 53, 81, 109; cases of pneumothorax, Vickery, H. F., 64, 70; the therapeutic value of alcohol in pneumonia, 99; leukocytosis as an element in the prognosis of pneumonia, Cabot, R. C., 117, 135; ætiology of pleuritis, Jakowski, 150; subphrenic abscess with special reference to those cases which simulate pyo-pneumothorax, Mason, A. L., 186, 201, 217, 247; creasote in the treatment of tuberculosis, Whittaker, J. T., 193; recent progress in thoracic disease, Sears, G. G., 220, 250; relation of dyspepsia to pulmonary tuberculosis, 228; lingual traction in cases of suspended respiration, Laborde, M. J. V., 283; pulmonary tuberculosis with special reference to its prophylaxis, hygienic and climatic treatment, Otis, E. G., 337, 352, 361; intubation of the larynx in private practice, results in seventy-eight cases, Whitney, C. M., 341, 350; tracheotomy and intubation at the Boston City Hospital, Gay, G. W., 388; a case of foreign body impacted in the larynx, Hopkins, F. E., 417; the surgical treatment of pulmonary cavities, Dandridge, N. L., 463; discussion on lesions of pleura, Shrady, J., and others, 470; large doses of strychnine in pulmonary and cardiac diseases, Mays, T. J., 477; long suspension of normal respiration, Smith, R. K., 502; pathogeny of bronchitis, 522; epidemic influenza, 524; tracheotomy in a case of empyema following pneumonia, Hill, J. C., 618.

Rheumatism. Rare forms of gout and rheumatism, Grant, J. A., 597.

Richardson, M. H. Pathological specimens, 303; the use of salines in appendicitis, 335; hysterectomy for cancer of the cervix by continued abdominal and vaginal dissection, 436, 444; some abdominal operations, 491; cancer of the uterus, 567; tumor of the parotid, 567.

Robb, W. H. Treatment often indicated after tracheorraphy, 497.

Robinson, B. On the course and treatment of certain uræmic symptoms, 145.

Roteh, T. M. The general principles underlying all good methods of infant feeding, 565; report on the diseases of children, 619.

Rotheln. Is German measles (Rotheln or Rubella) an independent disease? Putnam, C. P., 30, 37.

Rotunda Hospital Report, 229.

Rowe, G. H. M. Isolating wards and hospitals for infectious diseases, 385.

Sachs, H. Tabes and syphilis, 445.

St. John, S. B. Restoration of the upper eyelid by means of a flap taken from the cheek, 544.

Salines in appendicitis, Gordon, S. C., 557.

Salt. The subcutaneous injection of salt solution, a substitute for the intravenous method, report of cases and a simple apparatus, Cobb, F., 325.

Sanborn, G. H. Appendicitis, 353.

Scarlet fever. The complications of scarlet fever as observed in fifty cases, Jackson, H., 162, 172; the putrid poison of scarlet fever, 334; an epidemic of scarlet fever; etiology, Spear, D. D., 534.

Scudder, J. M. Diphtheria, tracheotomy, persistent and increasing dyspnœa, systematic curetting of the trachea, recovery, 465.

Sears, G. G. Recent progress in thoracic disease, 220, 250.

Sectarianism in medicine, Cutler, E. R., 158, 181.

Sedgwick, W. T. Quarantine *vs.* sanitation, 193; an investigation of an epidemic of typhoid fever in Somerville, Mass., due to infected milk, 485.

Sedgwick, W. T., and Chapin, W. H. An investigation of an epidemic of typhoid fever in the city of Springfield, Mass., due to infected milk, 485.

Seguin, E. C. A case of generalized paresis ending in complete recovery, 601.

Septicæmia. A case of acute septicæmia, Harrington, F. B., 169.

Serotherapy, 449.

Sherman, F. M. A case of litholapaxy, 324.

Shoemaker. The non-operative treatment of salpingo-ovaritis, 126.

Shrady, J. Discussion on lesions of the pleura, 470.

Sinkler, W. Tumor of the optic thalamus, 447.

Small-Pox in the "good old days," 382; preliminary report upon investigations concerning the contagium vivum of small-pox, Martin, S. C., 589.

Smith, A. H. On the reaction of urine with ether, 170.

Smith, C. D. The significance of hæmaturia, 44.

Smith, R. K. Long suspension of normal respiration, 502.

Smith, T. Some problems in the etiology and the pathology of Texas cattle fever and their bearing on the comparative study of protozoan diseases, 252.

Snow, H. The direction of cancer treatment, 78.

Societies. American Medical Association, 16; American Neurological Association, 395, 421, 445; American Ophthalmological Society, 517, 543; Association of American Anatomists, 16; Association of American Physicians, 144, 170, 199, 222, 252; Boston Society for Medical Improvement, 37, 96, 172, 300, 541, 646; Boston Society for Medical Observation, 276, 376; Cambridge Society for Medical Improvement, 420, 621; Congress of American Physicians and Surgeons, 478; Harvard Medical Alumni Association, 513; International Congresses, 282, 631; Maine Medical Association, 42; Massachusetts Cremation Society, 477; Massachusetts Medical Society, 66, 527; Massachusetts Medical Benevolent Society, 450; Massachusetts Medico-Legal Society, 472; New Hampshire Medical Society, 362; New York Academy of Medicine, 568; New York Neurological Society, 600; New York State Medical Association, 468, 497; Obstetrical Society of Boston, 120, 443; Pan-American Medical Congress, 202, 277, 328; Suffolk District Medical Society, 70, 472, 565, 596, 621; Tri-State Medical Society of Alabama, Georgia and Tennessee, 478.

Sourberbielle, 577.

Spear, D. D. Fracture and injuries to the head, 300; an epidemic of scarlet fever; etiology, 594.
Spine. The treatment of sensitive spines, Lovett, R. W., 33, 40; reduction of cervical dislocation, a successful case, Walton, G. L., 553.
Sprague, F. B. A simple substitute for the Leiter coil, 93.
Standish, M. Retinitis punctata albescens, 520; recent progress in ophthalmology, 643.
Stanton, R. J. Some more intubation statistics, 606.
Starr, M. A. Three cases of myxœdema, 223.
Stelwagon. The increasing frequency of the itch, 406.
Stephenson, F. B. Letter from China, 311.
Still-born. Registration of the still-born, 330.
Stomach. Lavage of the stomach, Pick, 77.
Stone, A. K. The hygienic argument for cremation considered from a bacteriological standpoint, 433, 462.
Stowell, W. L. Statements (on therapeutic instability etc.) in leading works on medicine of the past twenty-five years, 568.
Surgery. Lectures on surgery, Cheever, D. W., 1, 105, 129, 153, 209, 233, 313, 361, 409, 481, 529, 581, 633; recent progress in surgery, Burrell, H. L., and Cushing, H. W., 466.
Syphilis. Early nocturnal pain in syphilitic spinal disease, Charcot, 309; tabes and syphilis, Sachs, H., 445.
Tabes and **syphilis**, Sachs, H., 445.
Taylor, E. W. The study of the anatomy of the central nervous system, 322.
Tear passage. Hinc illæ lachrymæ, Coggin, D., 465.
Tees Valley. Enteric fever in the Tees Valley, 546.
Teeth. The medical aspect of diseased teeth, 406.
Tendons. A study of tendon suture, Lund, F. B., 566.
Tenement-houses of Boston, 256.
Tenotomy, Phelps, A. M., 194.
Tetanus. A case of chronic tetanus followed by scarlet fever, Cloud, J. H., 395.
Texas cattle fever. Some problems in the etiology and the pathology of Texas cattle fever, and their bearing on the comparative study of protozoan diseases, Smith, T., 252; Texas cattle fever and the mode of its transmission, 254.
Theobald, S. Several cases in which the vertical diplopia test proved untrustworthy, 519; an additional note in reference to the case, useful vision maintained by means of a totally dislocated lens, heretofore reported to the society, 519.
Therapeutics. Report on therapeutics, Williams, F. H., 395.
Thomas. Dislocation of the shoulder, 102.
Thompson, C. O. Horse-hair in minor surgery, 345, 351.
Thompson, W. G. A study of Addison's disease and of the adrenals, 171.
Thorndike, A. A modification of the long traction splint for hip disease, designed to provide a light apparatus for little children, 540.
Thorndike, P. Long-continued bladder drainage, 216; an anomalous external iliac artery, autopsy report, 348, 351.
Tick. Ixodes or tick, Williams, H., 250.
Tonsils. Parenchymatous injections in the tonsils, Von Ziemssen, 50; recurrent tonsillitis, Leland, G. A., 373, 376, 390; reducing the tonsils, De Blois, T. A., 375, 376.
Townsend, C. W. Cases of extra-uterine pregnancy, 438, 444; placenta previa at the Boston Lying-in Hospital, 612.
Trachea. Treatment often indicated after trachelorraphy, Robb, W. H., 497.
Tracheotomy and intubation at the Boston City Hospital, Gay, G. W., 388.
Tuberculosis. Discussion on tuberculosis, Welch, W. H., 253; the operative treatment of peritoneal tuberculosis, Conitzer, 282; pulmonary tuberculosis with especial reference to its prophylaxis, hygienic and climatic treatment, Otis, E. O., 337, 352, 361; prevention of tuberculosis, 574.
Tumors. The treatment of malignant tumers by inoculation of erysipelas, Cody, W. B., 22.
Tuell, J. E. Work required of the country doctor, 44.
Typhoid fever. An epidemic of typhoid fever, 49; typhoid fever in Boston, McCollom, J. H., 295, 300; may typhoid fever arise *de novo?* 426; a new diagnostic sign in typhoid fever, Filipovich, 429; an investigation of an epidemic of typhoid fever in the city of Springfield, Mass., due to infected milk, Sedgwick, W. T., and Chapin, W. H., 485; an investigation of an epidemic of typhoid fever in Somerville, Mass., due to infected milk, Sedgwick, W. T., 489; the treatment of enteric fever, Elliot, G., 497; researches on the efficiency of vaccinia after typhoid fever, Finder, W., 498; enteric fever in the Tees Valley, 546.
Tyson. Heart disease or kidney disease, 76.
Tyson, J. Two cases of cystic calculus, 172.
Urinary System. The significance of hæmaturia, Smith, C. D., 44; the treatment of prostatic hypertrophy, Gerrish, F. H., 44; hæmoglobinuria complicating pneumonia, Nash, W. G., 50; heart disease or kidney disease, Tyson, 86; the treatment of prostatitis by ichthyol, 77; on the course and treatment of certain uræmic symptoms, Robinson, B., 145; on the reaction of urine with ether, Smith, A. H., 170; probable origin and early symptoms of certain chronic diseases of the kidneys, Bond, C. S., 171; a study of Addison's disease and of the adrenals, Thompson, W. G., 171; two cases of cystic calculus, 172; a useful method of drainage in supra-pubic cystotomy, Cobb, F., 197; a case of calculous pyelitis with complete suppression of urine for seven days; relieved by operation, Cabot, A. T., 213; long continued bladder drainage, Thorndike, P., 216; a case of litholapaxy, Sherman, F. M., 324; a peculiar cause for urethral hæmorrhage, Herrick, 333; ligature of the internal iliac artery for prostatic enlargement, Bier, 358; intraperitoneal cystotomy, Harrington, F. B., 443; an additional note on nephrotomy and nephrectomy, Ferguson, E. D., 469; remarkable effects of divulsion of the urethra, Homans, J., 641.
Vaccination. Researches on the efficiency of vaccinia after typhoid fever, Finder, W., 498.
Valude. Atrophy of the optic nerve following iodoform poisoning, 405.
Vanilla. Poisoning by vanilla, White, J. C., 440.
Vickery, H. F. Cases of pneumothorax, 64, 70.
Von Bergmann. Trephining for pistol wounds, 77.
Von Ziemssen. Parenchymatous injections in the tonsils, 50.
Walton, G. L. Anatomical specimens, 97; a new method for the reduction of dislocation of the cervical vertebræ, 423; tumor of the angular gyrus, 446; reduction of cervical dislocation, a successful case, 553.
Warren, J. C. A case of diffuse hypertrophy of the breasts, 120; a case of congenital hernia of the liver, 121; medical education in the United States, 285.
Wasp-sting. A case of wasp-sting with rapid constitutional symptoms, 309.
Water. Water-filtration and cholera, 74; the water-supply of London, 452, 474.
Watson, F. S. Recent progress in genito-urinary surgery, 595.
Weber, L. Spinal neurasthenia, 447.
Welch, W. H. Discussion on tuberculosis, 253.
White, J. C. Poisoning by vanilla, 440.
Whitney, C. M. Intubation of the larynx in private practice, results in seventy-eight cases, 341, 350.
Whittaker, J. T. Creasote in the treatment of tuberculosis, 199.
Williams, C. T. Climate of Colorado, 576.
Williams, F. H. Report on therapeutics, 395.
Williams, H. Ixodes or tick, 250.
Williams, J. L. A statement of some facts in regard to the origin of the practical application of anæsthesia in surgery, 383.
Withington, C. F. A last glimpse of Charcot at the Salpétrière, 207; medical teaching in Germany, 585, 596.
Witnesses. Medical witnesses, 250.
Wood, H. C. Lectures on therapeutics, 25; experimental observations concerning the nature of cholera, 200.
Worcester, A. A possible opportunity for Waltham women temporarily out of work, 151; appendicitis, 506, 535.
Wyeth, J. A. Bloodless amputation at the hip-joint; report of cases operated on by the author's method, 471.
Wyman, S. E. Anthrax faciei, 419, 420.
Wyman, W. Extinction of contagious diseases, 17.
Zorkendorfer. The bacteriology of suppurative meningitis, 51.

Lecture.

LECTURES ON SURGERY.

BY DAVID W. CHEEVER, M.D.,
Professor of Surgery in Harvard University.

X.

SPECIAL FRACTURES.[1]

THE head of the Radius receives a good many blows. It is quite exposed. The outer condyle does not shield it very well; and it gets a rap frequently. Fracture of its neck is extremely rare. It can be diagnosticated, if present, by putting the arm in the flexed position. Get the thumb on the head of the radius, rotate and see whether the head rotates, or whether we get crepitus. If a fracture exists, it is to be treated on the internal angular splint; the arm to be kept quiet and prevented from supination or pronation for two or three weeks, and then passive motion is to be used.

The more common injuries of the head of the radius are of two kinds: one is partial dislocation of the head of the radius, which occurs in infants and very young children, and is ordinarily produced by the nurse's lifting the child by the wrist. It is a most pernicious practice. The immense weight below acts as a great leverage, pulls upon the radius, and presently the child drops its arm. It will not rotate; it will not pronate or supinate; and there is a slight projection of the radius at the joint. This injury is common in very young children; and it is thought to be a sprain, and frequently overlooked. It is not a fracture; it is not a thorough dislocation; it is a partial dislocation, with subsequent inflammation about the head of the radius.

The child should be etherized, and extension gone through with, and the head of the radius be rotated, and pushed back into place. Use fomentations a few days, and the child recovers.

The other injury is stellate fracture of the head of the radius. The patient must receive that injury in a very peculiar way. It may occur in connection, possibly, with Colles's fracture; at any rate it is probably produced by the same sort of violence. When a person breaks the radius about the wrist, he frequently does it while attempting to save himself from falling. Falling directly upon the palms, transmitting the force upwards, may drive the head of the radius also against the condyle, and cause the injury of stellate fracture of the articular surface. This is an obscure injury. The patient is lame, sore, he cannot rotate, supinate or pronate. There is an obscure rubbing sound more like tendon than bone. If we are sure that the head of the radius is in place, sure that it rotates under the finger, and can eliminate fracture of the shaft of the radius, and the symptoms continue, we may conclude we have a crack through the head of the radius. The only consequence about knowing whether it is so or not, is as to treatment and prognosis.

Rest will restore it; and restoration of the part will be quite complete, if we give it time. Put it in a sling; foment it and allow it to heal. Yet it will be slower of recovery than a simple sprain.

By far the most common injury of the radius is the break just above the lower epiphysis, usually at the junction of the shaft and the cancellous portion, or about three-fourths of an inch above the wrist. This occurs most frequently by falls upon the hand, and is very often an impacted fracture, unlike other features of the upper extremity. An impacted fracture — why it is so, you see by looking at these sections of the bone, showing where the shaft comes down and terminates in this expanded cancellous portion; and when the break occurs, the shaft is driven into the cancellous tissue. It is never driven in without displacement, generally antero-posterior, giving rise to marked deformity.

The other fracture of the lower end of the radius is a complete fracture; and when that occurs, the lower end of the bone rides considerably out of place and the hand goes with it. The peculiar prominence of the styloid process of the ulna, which is so marked in the thin arm, vanishes; and instead of that it reappears as a projection upon the ulna side. The natural projection of the styloid process is gone; and what appears to be styloid process is a partial dislocation of the ulna. The whole hand drops over to the radial side. The antero-posterior displacement is very marked indeed, giving that peculiar appearance of the two curves called the silver-spoon deformity.

The first thing to attract attention is the loss of prominence of the styloid process of the ulna. When you find that gone, you may be pretty sure that fracture of the radius has taken place. Next, you look underneath and find all the natural hollows of the wrist obliterated, and great protrusion where the wrist should be; and further back you find another antero-posterior projection. If a complete fracture, in a little while you find the ulna pushing out to the ulna side, the antero-posterior deformity being the most marked.

The first and most important question in recognizing this fracture; which by the way is overlooked about as often as any fracture in the body and usually considered, when overlooked, to be sprain of the wrist; the great point, I say, to be made out when you make the diagnosis that there is a fracture of the lower end of the radius, is whether it is an impacted fracture, or a complete fracture. The complete fracture, by a little force, is easily drawn into place, so that the natural outlines are at once restored. If an impacted fracture, you draw down and the deformity remains the same; and it will remain so always unless it is broken up by force. Why not leave it as it is? The deformity is not great. Is it not improper treatment to pull it apart thereby delaying union, it being known to be one of the worst possible practices in surgery to interfere with impaction of the neck of the thigh-bone? Unfortunately, if this fracture is left unreduced, subsequent stiffness, deformity, neuralgia of the hand are sure to result, because projection and pressure on the nerves and numerous flexor tendons here leads to so much displacement and effusion, that neuralgia of the ulnar nerve is extremely common, and great stiffness, and loss of power and strength in the use of the hand itself. There are then very important reasons why this impaction should be broken up. Now simple extension and counter-extension wont do it. You have got to exert great force, and it is better to give ether for it. The arm being seized, and the hand extended and bent towards the palm, you compress the fragments with the thumb, and force them down until you break up the impaction — are conscious of lateral motion and complete fracture; and then you pull the parts into place. Then you have converted a partial into a com-

[1] These are unwritten lectures printed from the stenographer's reports. Verbal corrections are made in revision, but no rhetorical changes. They were delivered to the third and fourth classes as part of the regular course.

plete fracture; and the treatment for the complete fracture becomes the same for all that class of cases.

The important point would seem to be in treating these fractures not to press the back of the wrist down in such a way, by splints, that we shall lose sight of this arch, which is so marked, under the radius. If we force this bone down so that it lies on a flat surface, we do not have a good result. This arch must be well supported; and in addition to that, the best position is one midway between pronation and supination, with the hand bent over a roller, leaving two joints of the thumb and all the joints of the fingers free to move.

Mr. Colles, of Dublin, gave his name to this fracture, and first accurately described some of its peculiarities. It almost always occurs from one-half to three-fourths of an inch above the carpal end of the radius, where the hard shaft of the bone meets the soft cancellous tissue. We said it was frequently impacted, though sometimes a complete fracture. I did not say at the last lecture what ought to be said, that this is one of the very difficult fractures to treat and get a perfect result. It is not quite so much so as the collar-bone, for the collar-bone almost always results in some deformity when the fracture is anywhere near the middle of the bone; but, on the other hand, although the deformity at the wrist from this fracture may not be so great, yet its consequences are much more disastrous. A lump upon the collar-bone, which will shorten the shoulder, is of little account except for the looks; on the other hand, the marked deformity from bad union of fracture of the radius is conspicuous, impairs the mobility of the flexor tendons, weakens the ligaments, and frequently gives rise to persistent neuralgic or rheumatic pains, we can hardly say which.

It seems to me the three essential points in treating are: first, diagnosis, for the fracture is frequently overlooked and mistaken for a sprain, with disastrous results. Next, if it is to be set, it must be set at the first visit, or it is never set afterwards. Successful reduction of the impaction and getting the bones into their proper position, or the fragments of bone into their proper position, is the second great *sine qua non*. And the third one is, that in order to prevent future stiffness of the tendons, confinement of the fingers and thumbs should never take place under the splint; but the splint should terminate at the head of the metacarpal bones, and the thumb and fingers should be left free.

Careful diagnosis, reducing impaction and deformity, subsequently leaving the fingers and thumb somewhat loose and free, seem to be the essential points in order to get a good result.

In spite of all this, and in spite of the most careful treatment, subsequent troubles occasionally arise; and they arise, if the bone has been properly set, in two ways. If the patient is old, and subsequently rheumatism of the fibrous tissues about the joint is set up, rheumatic adhesions and stiffness take place in the sheaths of the tendons; large effusions occur about the palmar surface of the wrist, and on the dorsum, which are not readily absorbed; and loss of perfect motion of the fingers and thumb frequently results in the old, although the fracture may do perfectly well. So we must give a guarded prognosis in the elderly person. The other cause of imperfect restoration is of an entirely different character, and exists usually in younger subjects, though sometimes in middle-aged subjects, but most frequently in females. It is due to the fact that the radio-ulnar ligaments which attach the radius to the ulna; also the lateral ligaments of the wrist-joint, which attach the bones of the forearm to the bones of the wrist, are ruptured, or stretched and sprained, at the time of the fracture, so that the hand is partially dislocated at the wrist; and they do not recover their firmness and contractility perfectly in every case. This is the class of cases in which the following result will be observed to take place. An ordinary Colles's fracture having occurred, diagnosis having been made, the bone thoroughly set, it comes out of the splints in good position and apparently with an excellent result. The patient is lost sight of, but returns in a few weeks, or months, with lateral displacement of the ulna, partial dislocation of the wrist, and looseness or limpness of the whole articulation. This is due to want of restoration of the ligamentous union. It does not recover its firmness and elasticity so quickly, if at all, as the bone; and this is not noticed, in some subjects, for the first few weeks. For this condition the surgeon should hardly be held responsible; neither should he be held responsible for the rheumatic condition, which sometimes follows. All that he is properly responsible for is to make a diagnosis; to be sure that he reduces the impaction and gets the bones into their proper position; and, subsequently, for a reasonably careful treatment. In the large majority of cases a very fair hand will result — a perfect one in some cases; an imperfect one, according to surgical authorities, in some cases, in spite of the best treatment.

Non-union is not to be dreaded. Union usually takes place, generally within three weeks, and at four weeks is well consolidated; so that we have not that danger to fear. We have rather the danger to fear of imperfectly matched fragments, subsequent distortion, stiffness of the fingers, subsequent relaxation of the ligaments.

We spoke of the fact that this was almost the only case in which it was proper to seize an impacted fracture and break it down and restore the fragments to place. The fact that union is almost sure to occur makes us the more bold to do this; and what we would not venture on in fracture of the neck of the thigh-bone, we may do with safety at the wrist.

The mistake that is made in the diagnosis in these cases is, almost always, that the patient has sustained nothing but a sprain. If seen before great swelling has come on, the peculiar arch-shape of the wrist may make us suspect fracture. Suppose, after all the skill we can expend, the diagnosis is uncertain; it is the wisest plan to treat as if a fracture certainly existed. Draw the parts into place; put them on a splint, and keep them confined a reasonable length of time. Many patients will not submit to this; and many patients do not seek the aid of the doctor. If, however, we have a chance to treat the case, and cannot make a sure diagnosis, we had better treat it as if it were a fracture for two or three weeks; being sure that the treatment of a sprain, in that way, will not be impeded; while, if there is a fracture, we shall get a good result for the patient.

On account of the lateral deformity in the complete fracture of the radius, surgeons were led to employ splints which should press the ulna back into place; and M. Nélaton invented one called the pistol-shaped splint. In that way, by drawing the hand over to the ulna side, the ulna is forced back perfectly into place.

Unfortunately this entails other troubles, which make it a bad mode of treatment to adopt. The great strain put upon the lateral ligament, on the radial side, results usually in a weak wrist, and imperfect restoration of the hand back to its normal position, when the splint is taken off. This splint is now seldom used.

I spoke of the arch under the radius, that it should be well supported by a splint running up under it. No splint is so comfortable as that sometimes called Bolles's splint, or Smith's splint; splints which have been invented here, and used in our hospital a good deal. I would also name Carr's splint, as fulfilling the same indications. Some people go so far as to treat this fracture without splints, saying if the hand is put firmly in this position with adhesive plaster, a very good result will occur. It is not sufficiently sure as a method of treatment to render it safe to pursue it. You must bear in mind, in all these cases of doubtful result, that you not only want to do the best thing for your patient, but have, to a reasonable degree, to guard yourself against any future charge of having failed to do this or that, which usage has rendered the proper thing to do in the large majority of cases; consequently, unless some very distinct advantage can be shown by a new method of treatment, it is better to use that which has been approved by long experience. The patient is in no way so comfortable as upon a splint, even with a sprain; and in fracture, it seems to be doubly necessary.

The splint must not extend below the head of the metacarpal bones; and the dorsal splint should terminate over the projection of the os magnum; and then fingers and thumb will be left freely to play. If there is much distortion of the ulna, a little pad may be applied, by which the ulna may be pushed in; but that is not always necessary, though it is sometimes. The splint should be seen and watched as to tightness within twelve to twenty-four hours; probably taken off once or twice in the first three or four days, in order to loosen and tighten, as swelling increases or diminishes. The dorsal splint should be lifted off at the end of a week; bandages undone; hand allowed to rest on the roller splint; and the patient should be encouraged to manipulate a little, to see if everything is loose and free. Again, at the end of another week; and at the end of three weeks, it is customary to take off the dorsal splint altogether, leaving the hand upon the roller, and the under splint only, but bandaged. At the end of four weeks it is safe to take off all the splints, and allow the hand to lie in a sling. You will find one curious thing in regard to all patients, that while they resist and suffer at first from the irksomeness of splints, after two or three weeks they become so dependent upon them, that they are very reluctant to have them taken away. Now comes the time when the surgeon must take the initiative; and if it is a fracture and has united, he must encourage the patient to take off the splint and use the arm. All splints and bandages necessarily atrophy the muscles, and stiffen up all the joints which are connected. The joints become immovable; and this is, in itself, an evil to be got rid of, as soon as union has taken place. This is the case in any fracture, as well as in this fracture of the radius.

Union almost always occurs. Faulty union may occur; and sometimes the question comes up whether it is wisest to re-fracture the part in order to get a better result. If there is much deformity, if there is persistent neuralgia, is it safe to re-fracture the part? After a longer period than five weeks it is extremely difficult to break it over again. Although occasionally it is done under ether, yet frequently the bones give way in a new place; and you have a badly united fracture and a new fracture, instead of the original injury. In children, we may, in four or five weeks, very well re-fracture and re-set the arm; in older people we have to be more cautious; and after a month or so has elapsed, it is wiser to say to the patient, "You probably have got a better result than you would get by re-fracture." State to him the possibilities.

After the splints are off and the sling is used, the patient must be encouraged to use the hand and arm, and have the motions of supination and pronation, as well as those of flexion and extension made; and it is in these cases, subsequently, that massage and electricity are of great use.

This is a troublesome fracture. It is one of the most common fractures we have to treat. Every one should know how to take care of it. The essentials are; first, diagnosis; next, reducing the impaction, getting the part back to its normal look in every way; and, third, not confining the fingers and thumb in a splint, so that resulting good use of them may occur.

Fracture of the Ulna. — Occasionally the ulna is broken, somewhere about its middle, or anywhere along its shaft. It may be broken by a direct blow, because it is a superficial bone as the tibia is. It is directly under the skin. It is a transverse fracture usually. There is very little displacement, and what displacement there is usually consists in bowing towards the ulnar side, inwards.

It is easily reduced, and very easily treated, and usually unites well. It is not worth while to take up much time with fracture of the shaft of the ulna.

Fracture of the Coronoid Process. — Fracture of the coronoid process is so rare that some surgeons have doubted it; and very few specimens of it exist in any museum. It is to be borne in mind, that in the original growth of the bone the coronoid process is not an epiphysis, and has no natural tendency to separate.

A very peculiar force must be exerted to break it, buried, as it is, in the muscles of the arm; and when it is broken, the upper fragment will be lifted up towards the humerus by the attachment of the brachialis anticus muscle. The joint is unlocked at once. Dislocation backwards takes place. Then the question is, Is it a simple dislocation, or is there any bone broken which normally holds the joint in place? Of course, we go through all the manœuvres of reducing dislocation and getting it into position, and see if it will stay there. If the coronoid process is broken off, it will not usually stay in place.

The treatment is simple. It is the internal angular splint with a firm pad in the bend of the elbow to compress the coronoid process down into place. If we are satisfied that this fracture exists, and if that treatment is adopted, you must see, that treatment should be carried on a good while, to secure consolidation of this little piece of bone against the efforts of the brachialis anticus to draw it out of its place in every movement of the arm. The splint should be kept on five or six weeks. Neither would it do at a very early stage to use flexion; but the accident is so rare that we need not consider it very much.

On the other hand, the olecranon is an epiphysis; it separates easily in childhood, and breaks off easily in

the adult, from a fall occurring exactly in the right direction upon the very tip of the elbow. It breaks transversely. To the olecranon process is attached the tendon of the long extensor of the arm, the triceps; and its natural tendency is to pull this fragment up on the back of the humerus. This displacement, however, does not usually occur at first, on the receipt of the fracture; and it is a point on which I wish to insist, because fracture of the olecranon is occasionally overlooked, when it has occurred, during the first few hours, from the fact that great displacement is expected and is not found. In many of these cases you will find, that when you first see the patient, all you can detect across the back of the elbow is a chink in which you can barely put the thumb nail; but by seizing the little fragment and moving the arm, you may make sure of crepitus. If you see it after twenty-four hours, you will frequently find a separation, so that you can lay the little finger between the fragment and the bone itself. The fragment has ridden up quite a distance on the back of the humerus; but this does not take place, at once, on the receipt of the injury.

It is broken across transversely, lies in place. The patient keeps the arm still to resist pain. Slowly the triceps contracts; and if treatment is not administered, after a little while it draws it out of place, and then you can detect it.

In its future slowness to unite, and its imperfect union, the olecranon may be compared to the patella. In many cases nothing but ligamentous union occurs; in some few cases bony union. Ligamentous union is extremely strong and useful, however; and the patient gets along very well, though there may be a slight separation of the fragments.

It is obvious that in order to restore the bone to its normal place the arm must be in the extended position. The moment you begin to bend, it separates and rides up upon the humerus.

Now to get the most perfect result in the way of union, the old treatment, which is still used by many, was to treat it on a perfectly straight inside splint; the patient carrying his arm about extended; the splint going down to the palm and up to the axilla, just as we would splint a broken thigh. It is rather disastrous in its effects. The parts are held in an extremely awkward position. It is a long while before we can venture to get flexion of the elbow; and it is doubtful if the patient gets as good a result as he does in another way.

Among the many wise observations of Hippocrates, there is described his mode of treating fracture of the olecranon, which is practically the mode we are coming back to. He said that there was ligamentous union; that if we kept the arm too straight and stiff it could not be used very well afterwards. The typical way would appear to be to put on a splint at a very obtuse angle, with a screw to enable you to move it a little every few days. In addition to this, a good deal can be gained in holding the fragment in place by a figure-of-8 bandage of adhesive plaster, just as you hold the fragments of the knee-pan in place, by the figure-of-8 bandage.

Pad in the bend of the elbow, figure-of-8 bandage, slightly obtuse angle, and an adjustable splint, seem to give the best results in fracture of the olecranon. This is especially true in the old person; and most of these fractures happen in the old, because in them the bone is brittle. They are apt to fall on the very point of the elbow; and in them, six weeks' confinement in an extended position entails disastrous anchylosis; whereas the partially obtuse angle position, with slight mobility, produces a better result; and even if they have ligamentous union only, they will have, on the whole, a more useful arm.

This fracture, however treated, has got to be a slow affair; eight weeks probably. It will not unite firmly until a considerable length of time has elapsed. So much the stronger reason to have the ability to give a slight motion to the joint, from day to day, after treatment has progressed for two or three weeks.

Fracture of the Radius and Ulna. — Fracture of both bones of the forearm is subject to a variety of disasters. We spoke the other day of the fact that the radius was necessarily twisted out of place by its supinators and pronators according to the site of the fracture, and it was very difficult to get these two fragments to lie in an exact line; and in fracture of both bones of the forearm it is practically found that the ulna is held in position, unites promptly, acts as a splint to the other bone; and the other bone, if it unites, usually unites with a distortion, and later than the ulna does. Then another trouble is liable to arise, which is, if the fractures happen to be about the same line, the radial fracture may be drawn pretty nearly into contact with the ulna fracture, and in the effort of nature to repair the broken bones she may build a bridge across from radius to ulna, and if that occurs, the radius is tied to the ulna, and the entire power of supination and pronation is forever lost. In what position of the forearm do they lie best apart in order to avoid this contingency? We see at a glance that pronation would be a very fatal position, that extreme supination also is a very bad position; that midway between the two, the bones are most thoroughly apart; therefore, in treating fractures of the forearm mid-pronation is practically the best thing. This, fortunately, is the position which the patient always assumes, if left alone.

Suppose we have this fracture, try to get it into place, push the arm into this position, and hold it by two antero-posterior splints. If those splints are narrow, the result of the bandaging will be to crowd the bones in together; consequently, in treating fractures of the forearm, where both bones are broken, it is desirable that the splint should be a good deal wider than the outer lines of the bones themselves. The whole arm should be flattened down between two broad boards, and held in a semipronated position. Splints have been contrived — perfectly useless, however — and various padding has been contrived, with the idea of pressing apart the bones, preventing them from pushing together, by a ridge on one of the splints, or a pad put between the splints, in a peculiar way. This does not succeed. It cannot press down the two layers of muscles. It only leads to some distress, irritation or sloughing from pressure on the parts themselves, and does not practically do much good.

Union of the ulna is prompt. Union of the radius is slower. Once the ulna joins, it acts as a splint.

There is one great danger of this fracture which has not been alluded to yet, and it applies in a certain degree to all fractures, that is the chance of stopping the circulation and causing sloughing and gangrene from too close bandaging of the parts. It is especially liable to occur in this case, because we have here two bones united by firm interosseus membrane. There

are two layers of flexor muscles, in and among which are veins, arteries and nerves. Compression may be very easily applied, with sufficient force to restrain the circulation to a disastrous degree, by bandaging the forearm tightly, because in so doing you press these tender parts upon an immovable posterior wall which cannot retreat and is not elastic; that wall being made up of the two bones and interosseus membrane; and cases of gangrene have occurred under this treatment in this fracture. Before, perhaps, the mischief can be recognized, mortification of the hand or tips of the fingers occurs — an extremely disastrous result for the patient, and for the doctor who happens to treat the case. Here, again, we see the safety of broad splints. You cannot very well compress the arm disastrously with broad splints unless you use extreme force. And here, again, let me speak of another point, and that is in reference to the way in which bandages should be applied where splints are required. It is this, a roller bandage should never be applied next to the injured or broken limb, but padding and sheet-wadding and splints should be applied first, and the bandage applied outside. This may seem idle to speak of. It is, however, occasionally done with the most disastrous results, because there is nothing to prevent this roller from constricting the swelling parts, and sloughing is liable to take place; whereas, if the splints are put on first and the bandage afterwards, the chances of obstructing the circulation are much less.

Non-union is to be dreaded here. Non-union of both bones is not very rare. It gives rise, when it occurs, to a useless arm. There is a false joint, and but little can be done with the arm. When this occurs you have two alternatives. One is a serious operation — cutting down upon the ends of the bones, scraping back the periosteum, sawing off the rounded parts, shortening up the forearm, fastening the two ends of the bones together, and treating it as a compound fracture. You may frequently get a good result in this way. It is a somewhat risky mode of procedure. If the patient does not wish to do this, if he has not the constitution to stand it or is too old, you have another resource, — to keep the arm permanently in splints. The splint is the internal angular splint with a flexible elbow, padded with chamois. The patient puts it on and off, bathes the arm, keeps it healthy. That does very well. The other is the only way to make the parts unite.

Fracture of the Carpus. — Fractures of the carpus are rare unless they are compound. The treatment is to push back the broken bones into place; bandage lightly on a splint; look out for effusion. These are usually compound fractures. The bones of the carpus are rarely broken except by some crushing violence, which has broken through the tissues.

Fracture of the Metacarpal Bones. — Fractures of the metacarpal bones, on the other hand, are not uncommon, and the most frequent place for them is near the knuckle, near the distal end of the metacarpal bone. Occasionally the metacarpal bone of the fifth finger on the ulna side is broken at the middle from a blow. Once in a while in consequence of a severe blow this large second bone is broken; but the usual fractures are down near the distal end, towards the phalanges.

The best way to examine the two hands is to shut them and look at the knuckles. We see, often, a knuckle missing where there is a fracture. We say, at first, that there is a dislocation, that the finger has gone backwards into the palm; on the other hand, it is a fracture, and the head of the metacarpal bone and finger have dropped together. Put your finger underneath and press up, and it comes up into place and the line is restored; and by manipulation we can find crepitus, and be sure of the fracture.

This indicates the line of treatment to be pursued in fractures near these distal ends. Support must be from below. Putting the hand over a ball is good treatment. A large splint that holds the whole palm is also good treatment.

Union is slow. If you discontinue treatment too soon the bone sags, and subsequent deformity results.

Fractures of the Fingers. — Fractures of the fingers, phalanges, are, of course, easily recognized and easily treated. The point to be borne in mind is that there is liable to be deformity in two directions, as the finger recovers. We all recognize and try to treat, and usually succeed in treating well, the antero-posterior deformity of broken finger; but the lateral deformity is to be looked out for as much; and you must have the finger set straight in both directions, to get a good result. If you use little wooden splints to support the phalanges, you need four. If you use tin splints, they should be such as to support it below and on the sides. You must look to it that the finger is got perfectly straight, and not allowed to deviate to one side as the treatment goes on.

The finger bones unite quickly; and non-union is not to be feared. The only thing to be feared is, when the fracture is very near the joint, that we may have some resulting stiffness, and not have the perfect use of the flexor or extensor tendon.

Original Articles.

THE VITAL STATISTICS OF AN APACHE INDIAN COMMUNITY.

BY W. C. BORDEN, M.D.,
Captain, Medical Department, United States Army.

These statistics are of a community of nearly pure-blooded Indians living in abnormal environment.

As accurate vital statistics of American Indians are rare, if not unknown, this, and the fact that they show the effect of changed environment upon a nomadic people, give these statistics their particular interest. The lack of other accurate statistics of Indian communities gives no normal averages for purposes of comparison, making it impossible to determine the exact amount of divergence from usual rates which changed environment has caused in this community.

The extent of the effect produced must, therefore, remain inferential; but that there has been a decided departure from the normal will be plainly seen from the statistics themselves. These statistics, which are for a period of five years, from July 1, 1887, to June 20, 1892, were compiled by the writer from the official records of the military post at Mount Vernon Barracks, Ala., while on duty there during the summer of 1892, and are those of the Apache Indians now kept there under military supervision and control. This Indian community numbers about four hundred, men, women and children (see Table I), and is composed of various Apache bands, among them being the noted Geronimo and his followers, of Arizona fame.

The Apaches have lived for generations in Arizona and the adjacent parts of Old and New Mexico, becoming thereby constitutionally adapted to the dry, rarefied air and clear, diathermic atmosphere of the elevated regions of the southwestern part of the United States.

They are essentially nomadic and warlike in habit, and deserving of their appellation "Ishmaelites of the West"; they have not only been notoriously hostile to the whites but to alien Indian tribes as well.

This hostility to, and non-affiliation with aliens, has kept these Indians remarkably free from an admixture of foreign blood; so much so, that in this community of about four hundred, there are but five persons in whom white blood can be traced. In 1886, after numerous outbreaks and hostilities and their capture by United States troops, the Indians now forming this community were removed from Arizona and taken to Fort Marion and Fort Pickens, Fla. They remained there but a few months, and, in April, 1887, they were removed to Mount Vernon Barracks, where they now are.

Their condition during their stay in Florida was extremely bad. Brought in from the fatigues of the war-path and the destitution of their hunted camps, they were taken from the clear, dry and rarefied air of Arizona to the humid atmosphere and debilitating climate of the Florida sea-coast. They were supplied with rations and clothing, but were crowded into damp and improperly ventilated quarters.

Here the first effects of such radical change of environment began to manifest themselves, and clearly pointed to the necessity of an attempt to better their condition. Their removal to Mount Vernon Barracks effected a temporary improvement; as on their arrival there, they were placed in tents while a village of log cabins for their occupancy was being built. This village was completed before the end of the year; but the cabins were of the worst type of construction, and the site was unsanitary, being in a low, damp hollow so shaded by trees that free circulation of air and penetration of sunlight were greatly interfered with — a serious matter where, as in Southern Alabama, the humidity of the atmosphere is great and the rain-fall excessive.

They lived in this village for four years, during which time its condition and the health of the Indians became so bad that finally it was found necessary to build another; and in 1891, a much better village of framed houses was built on a hill near by, where the disadvantages of the old site did not obtain. In May of the same year, 46 of the able-bodied men were enlisted as privates in the United States Army, forming Company I, Twelfth Infantry, which was increased by the arrival of 32 Tonto Apaches from Arizona, some two months later. Captain W. W. Wotherspoon, U. S. A., who had been placed in charge of the Indians shortly before, and by whose efforts the building of the new village was undertaken, was given command of the company, and ably instituted reforms in the general and sanitary condition of the community. A commodious barrack was built for the Indian enlisted men; and a hospital with male and female wards was completed the same year. By these means the condition of the community was greatly improved.

In fact, as regards its sanitary condition during the five years for which statistics are given, there are two distinct periods.

During the first period of about four years, they lived under the unsanitary conditions of bad location, wretched habitation and accumulating filth. Their village was on a damp and overshaded soil, and their cabins were of the worst construction. They were built of rough logs, with mud or rough board floors, and with windows too small to admit sufficient sunlight. The roofs leaked, and the crevices between the logs were imperfectly closed. They, therefore, afforded but poor protection against the inclemency of the weather, and were damp, gloomy, dirty, and in every way unsanitary. The Indians being unused to living in permanent dwellings, allowed dirt to accumulate in and about them, as they were accustomed to do with their temporary "wickyups" in Arizona. The latter however, being frail structures of poles and brush-wood lasted but a short time, and were generally abandoned before dirt had accumulated to an unsanitary extent, while the cabins, being permanent, gradually accumulated filth until they became veritable incubators of disease.

The Indians themselves were in no better condition than their habitations. They received regular and abundant issues of rations and clothing; but as none of them were regularly employed at paid labor, they were without money, and, although forbidden, they sold all they could of both food and clothing to obtain it. The money so received they spent to no advantage to themselves.

Captivity, unaccustomed restraint and enforced idleness operated to prevent the mental stimulus of personal endeavor and combined with their unsanitary surroundings to produce a condition of mental and physical demoralization. As a result, the death-rate (see Table I) gradually increased until for the year ending June 30, 1891, it reached the extremely high rate of 142 per 1,000 of living.

During the last period of one year, beginning July 1, 1891, the condition of the community was improved in all ways.

Their new village being on the crest of a hill has plenty of sunlight and free circulation of air. The houses are of fairly good construction, are well lighted by good-sized windows, are plainly built, and are easily kept clean.

The enlistment of many of the men, and the employment of most of the others at paid labor about the village and garrison, removed the demoralizing effect of enforced idleness and gave the Indians a mental stimulus the effects of which can hardly be overrated.

They are now well clothed and well supplied with the necessities of life, while cleanliness of person and habitation is enforced by rigid military inspections and method. The Indian company, in neatness and in the well-kept condition of its barrack, compares favorably with any white company in the United States Army.

The improved condition of the community during the last year, over that of the preceding four years, is shown by the following extract from a report of an inspection made by Colonel Charles Page, Medical Director of the Department of the East, in which he says: "The Indian camp and hospital have been much improved and the quarters with surroundings occupied by the prisoners are as clean as those occupied by the soldiers. The transformation from squalor to neat and tidy condition of quarters and grounds is remarkable."

This bettered condition produced a marked effect

upon the mortality of the community and the death-rate fell (see Table I) from 142.58 per 1,000, of the preceding year, to 109.75. The number of deaths from all causes except tuberculosis fell (see Table II) from 35 to 18; and had the deaths from tuberculosis decreased in like ratio, the death-rate would have been lowered remarkably. Instead of this, the deaths from tuberculosis decidedly increased in number — the germs of the disease having been so thoroughly disseminated during the preceding years.

This general description of the condition of these Indians during the five years will make clear the circumstances under which the following statistics were produced:

TABLE I. — *Showing the mean number, according to age and sex, of Apache Indians present at Mount Vernon Barracks, Ala., for each of the five years beginning July* 1, 1887, *and ending June* 30, 1892; *the number of deaths according to age and sex; the number of births; and the birth- and death-rates per* 1,000 *for the same years.*

Year.	Mean number present (corrected for time).				Deaths.				Births.			Death-rate per 1,000.	Birth-rate per 1,000.
	Men.	Women.	Children.*	Total.	Men.	Women.	Children.*	Total.	Males.	Females.	Total.		
1887–88 . . .	78	170	118	366	1	11	8	20	9	8	17	54.64	46.44
1888–89 . . .	86	179	123	388	2	7	10	19	7	10	17	48.96	43.66
1889–90 . . .	92	176	124	392	6	13	24	43	6	28	34	109.69	86.73
1890–91 . . .	99	165	107	371	9	11	33	53	10	8	18	142.58	48.51
1891–92 . . .	122	169	119	410	10	11	24	45	16	15	31	109.75	75.61
Totals . .					28	53	99	180	48	69	117		

Mean death-rate for the five years . . .	93.12
Mean birth-rate for the five years . . .	60.19
Excess of deaths over births	63
Excess of female births over male . . .	21

* Under twelve years of age. The division is made at this age, as official record is so kept on account of those over twelve receiving a full ration from the government, while those under that age receive one-half a ration.

The high birth- and death-rates at once attract attention. The mean birth-rate of 60.1 is nearly double that of civilized communities. The general average in European countries for 1882 was 34.1 per 1,000 of population, the lowest rate being 24.8, and the highest 44.6, while the lowest rate of this community during the five years was 43.6, and the highest 86.7.

The mean number of women over twelve years of age, present during the five years, was 171; and as there were 117 births, the number of births during that time was equal to 68.4 per cent. of the mean number of women present, including those past and those who had not reached the menstrual period.

During the year of lowest birth-rate there was one birth to every ten women; and during the year of highest rate, one woman in every five gave birth to a child.

There are two main causes for the high birth-rate: great freedom of union of the sexes, and the practice of polygamy.

By great freedom of union of the sexes, unchastity is not meant, but, as most of the conditions which with a civilized people lead to sexual restraint, do not obtain with these Indians, early union of the sexes occurs, and the ties so formed are easily broken that other connections may be made. Infidelity is rare during their marital alliances, but these alliances are generally broken at the caprice of either party. The wife is usually obtained by purchase; but curiously, the right of the parents, and particularly of the mother, to a daughter so disposed of, does not end with her marriage. The husband only retains her during their approval; and payments of money or other valuables are extorted from him under threat of taking her from him. Curiously, also, the right of the mother seems not to be questioned by the married daughter; and she, obediently and apparently willingly, returns to her parents when, deeming that insufficient tribute is paid, they order her to do so.

Polygamy is practised; and as the women approach the menopause, the men form new ties with younger women. It will be seen that the family is not developed as with civilized people, but that sexual relations are generally formed on the basis of sexual activity.

As shown by Table I, the women are about double the men in number; but the practice of polygamy and of the men taking younger wives when the older are past the child-bearing period, gives as great opportunity for all the women to bear children as there would be in a community where there was an equal number of each sex. In consequence of the excess of women, it must be borne in mind, when comparing the birth-rate of this community with that of a civilized people, that an increase of men would not increase the births, but would decrease the birth-rate.

At the same time, consideration must be given the probability that this condition is a normal one for this and other uncivilized people — the greater exposure of the men from warfare and other conditions of life, probably tending constantly to keep their number reduced below that of the women.

It may be well to state, that it does not follow, because of their practice of polygamy and the ease with which their marriages are made and broken, that these Indians are immoral. Their standard of morals is different from that of a people of higher civilization. It is in keeping with their conditions of life and stage of race development; and judged by it, they have always been considered virtuous. They are quite free from venereal diseases. During the five years there were treated but two cases of syphilis, one case of urethral stricture, one of gleet, and thirteen cases of gonorrhœa. As before stated, there are but five individuals of mixed (Indian and white) blood in the community.

It is claimed by persons having long acquaintance with these Apaches, that they have always practised infanticide of all infants of mixed blood; but as they have never well affiliated with the whites, it is probable that occasion for such practice has been infrequent. During the five years of close observation at Mount Vernon Barracks no instance of such practice has been observed; and but one half-breed child has been born.

What effect, if any, their changed environment has had upon the birth-rate of these people, is difficult of determination.

Their enforced idleness during the first four years, so different from the activity of their former nomadic life, may have had a tendency to increase the rate; but, on the other hand, it would seem that a decreased rate would be produced by the high death-rate and the

increased amount of sickness which would necessarily accompany it.

How high the death-rate was will be seen from Table I, which shows a minimum rate of 48.9, a maximum of 142.5, and a mean of 93.1 per 1,000 of living; so that in spite of the very high birth-rate, the deaths exceeded the births by 63.

The following table shows the causes of death which produced this high rate, and the relative frequency of each cause:

TABLE II. — *Showing the causes of death, the number of deaths from each cause during each year and during the five years, and the percentage of deaths from each cause to the total number of deaths.*

Causes of death.	Number of deaths each year.					Total, 5 yrs.	Per cent.
	'87–88	'88–89	'89–90	'90–91	'91–92		
Tuberculosis	11	4	18	18	27	78	43.33
Scrofula	..	..	..	1	..	1	.55
Chronic rheumatism	..	..	..	..	2	2	1.11
General debility, adults	1	1	..	..	..	2	1.11
Old age	2	4	..	2	..	8	4.44
Malnutrition, children	..	1	3	5	1	10	5.55
Acute diarrhœa	..	3	7	13	3	26	14.44
Chronic diarrhœa	1	1	5	4	2	13	7.22
Obstruction of bowels	..	1	1	..	..	2	1.11
Peritonitis	1	..	..	3	1	5	2.77
Stomatitis	..	..	..	1	1	2	1.11
Asphyxia of new-born	1	..	1	..	..	2	1.11
Croup	..	..	..	..	2	2	1.11
Capillary bronchitis	..	..	..	1	1	2	1.11
Chronic pleurisy	1	..	..	..	..	1	.55
Pneumonia	1	1	3	..	..	5	2.77
Asthma	..	..	..	..	1	1	.55
Acute nephritis	..	1	..	..	..	1	.55
Chronic nephritis	1	..	..	1	..	2	1.11
Convulsions	..	1	1	..	..	2	1.11
Erysipelas	..	1	..	..	..	1	.55
Poisoned, Ind'n medicine	..	..	2	2	1	5	2.77
Suicide	..	..	..	..	1	1	.55
Unknown, infant	..	..	2	2	2	6	3.33
Totals	20	19	43	53	45	180	100.00

This table shows at once that tuberculosis, diarrhœal diseases, and malnutrition of children were the great causes of death.

Of the total of 180 deaths, 78, 43⅓ per cent. were caused by tuberculosis alone; while malnutrition of children and diarrhœal diseases together caused 49 deaths, or 27⅓ per cent. leaving but 53 deaths, or 29⅔ per cent. for all other diseases. It is plain from these figures, that the high death-rate of these Indians is due, primarily, to the prevalence of tuberculosis among them, and secondarily, to diseases of the alimentary organs. The reasons for the prominence of intestinal disease as a cause of death are readily ascertained. Most of the deaths from diarrhœal diseases were of children, as will be seen from the following, which gives the number of adults and of children dying of these diseases:

	Infants.	Adults.	Total.
Acute diarrhœa	21	5	26
Chronic diarrhœa	11	2	13
Totals	32	7	39

So that of the 39 deaths from diarrhœal diseases, the large number of 32, or 82 per cent., were of children. These 32 deaths added to the 10 deaths of children from malnutrition account for 42 of the 180 deaths.

The infant mortality of civilized people is notoriously high; and it is naturally to be expected that with these people the rate would be still higher, as the great causes of infant mortality, namely, ignorance in regard to the proper care and feeding of children, would exist in greater degree. Improper care exists at all times; improper feeding generally does not begin until the time for weaning approaches. It is rare to find an Indian mother who cannot nurse her child, for in the past, in those cases where the child could not be nursed, it died, so, gradually, through the law of the survival of the fittest, a race was produced whose women can nurse their children — a condition general with uncivilized people — the resources of civilization being necessary to produce the common occurrence of deficient mammary function by saving the lives of non-nursing mothers and so transmitting the tendency. But, when weaning occurs, the Indian children pass directly to the diet of the adults; and as the diet range of the Indians is limited, and their knowledge of cooking very imperfect, children with weak digestion are almost sure to contract acute bowel complaints, which, aggravated by continued improper feeding, generally prove fatal.

The improper feeding of children was undoubtedly as common with these Indians previous to their removal from Arizona as it has been since, but other disease-predisposing factors have been added by their change to their present place of abode, which have helped to produce a high infant mortality. In the hot and moist air of summer, which prevails in Southern Alabama during seven months of the year, putrefactive changes quickly occur; the improperly kept and poorly cooked food of the Indians is apt to take such change, and is, consequently, often given to the children when in anything but proper condition. From the elevation of Arizona and New Mexico, the air there is dry, and putrefactive changes are much less apt to occur. There the Indians habitually preserve their meat by drying in the sun and air; but in Southern Alabama meat so treated (and the Indians from habit still attempt to so cure it) almost invariably spoils, and is frequently eaten by them and fed to the children after it has begun to decompose.

To improper feeding is added improper clothing. During the first four years the clothing of the children was insufficient to protect them against the ill effects of temperature changes; and this, together with great dampness of the ground from frequent rains, had great effect in producing, or predisposing to, intestinal catarrhs.

It is probable, therefore, that the change of climate from Arizona to Southern Alabama, together with the unsanitary conditions of the first four years, produced a decided increase of infant mortality from intestinal diseases. But, while the death-rate from these diseases was very high, that from tuberculosis was still

higher; and the effect of changed environment in producing a high death-rate from this disease was most marked. How fatal tuberculosis was, and that it was the main cause of death, is shown by Table II and by the following table or tabulated comparisons:

Table III. — *Showing comparative death-rate for* 1,000 *living.*

	Men.	Women.	Children.	Totals.
Mean number present during the five years	95.4	171.8	118.2	385.4
Died of tuberculosis	21	29	28	78
Died, all other causes	7	24	71	102
Died, all causes	28	53	99	180
Death-rate from tuberculosis,	42.53	32.67	46.1	40.45
Death-rate, all other causes	14.17	27.03	116.8	52.65,
Death-rate, all causes	56.7	59.7	162.9	93.10

Death-rate, England and Wales, all causes, 1881-90 . . 19.15
Death-rate, England and Wales, tuberculosis, 1881-90 . 2.15

The death-rate of the men, women and children from tuberculosis is remarkably similar for so small a number of observations, and shows how uniformly fatal the disease has been. While the mean death-rate of the world from tuberculosis is not far from 2 per 1,000 of living, the average death-rate of this community from it has been 40.35. This rate shows the virulency and epidemic quality of this disease in this community; for the rate exceeds that of cholera in the worst infected districts during an epidemic, and is more than four times greater than was the rate from small-pox in London during the years from 1771 to 1781, when the latter disease was at its height.

The high death-rate of the children, from causes other than tuberculosis (116.8), is accounted for by the prevalence of diarrhœal and malnutrition diseases, before referred to.

The death-rate of adults, from causes other than tuberculosis, 14.17 for the men, and 27.03 for the women, is not high, being a mean of only a little over 20 per 1,000 of living, which is about that of the world at large; so that, so far as the adults are concerned, had their mortality-rate from tuberculosis been the usual one of 2 per 1,000, their rate, while high for adults, would have been but 22 per 1,000 of living.

It is generally accepted, however, that the death-rate of Indians from tuberculosis is always greatly increased whenever they are confined to given localities and their usual habits of free life interfered with. Nor can such increased death-rate be considered strange, for, in their natural state, an unconscious adaptation of themselves to their environment has taken place for them by which a normal balance of life is obtained.

The Apaches have lived for generations in the clear, dry, rarefied air of the Rocky Mountain uplands. Their habitations are of the frailest kind, open to the drying air and penetrating sunlight of those regions. From their nomadic habits, they move frequently from place to place, leaving behind them the dirt accumulated by living, and abandoning their frail and soiled habitations for new ones. When one of their number dies, the habitation in which the death occurs is burned, and the belongings of the deceased person are also burned or buried. In this way, by abandonment and burning — natural disinfection methods — communicable diseases, of which tuberculosis is one, were in large part avoided.

Only through long generations of gradual adaptation and natural training can a nomadic people adjust themselves to the living requirements of permanent habitation. With these Indians the experiment was made — unintentional as an experiment, it is true — of taking them suddenly from nomadic life and thrusting them unprepared by previous natural training into a life of quiescence and permanent habitation. The result is shown by the extremely high death-rate, particularly from tuberculosis. The relative frequency with which this disease in its different forms caused death among the men, women and children is given in the following table:

Forms of Tuberculosis.	Deaths from each form.			Totals.	Per cent.
	Men.	Women.	Children.		
Pulmonary	19	27	11	57	73
Enteric	1	2	11	14	17.9
Meningeal	..	..	6	6	7.6
Acute	1	..	..	1	1.2
Totals	21	29	28	78	

The frequency of pulmonary tuberculosis as a cause of death with adults, and of enteric and meningeal forms with children, is noticeable, and in keeping with general observations upon this disease.

The great frequency in children of mesenteric tuberculosis has been frequently observed before, and the ingestion of infected milk has been considered as the main cause. This view seems to be supported by these statistics, as the prevalence of tuberculosis among the mothers would, in this way, produce many cases other than pulmonary even were the children not infected when born.

The great predominance of pulmonary tuberculosis among the adults is also in keeping with general observations — the infection with them generally occurring by way of the lungs.

It is not so plain why deaths from this disease have been proportionately so much greater among the men of this community than among the women, unless it is that the somewhat less active life of the women has given them a certain degree of immunity. It is more probable, however, that this is not the case, and that no such difference would be found if the numbers from which the statistics are derived were larger. In fact, the whole question of immunity to tuberculosis, and of the different susceptibility of different races to this disease, is not yet settled. It is well known that certain races, as the nomads of Persia, Syria and Armenia, and the inhabitants of certain localities, as those of Iceland and the islands of Faroe, Shetland and the Hebrides, are almost, if not entirely free from the disease; while among negroes in this country, and Indians, when under restraint and in contact with civilization, it is particularly prevalent. It is also known that under changed conditions the same race exhibits an apparently varying susceptibility to the disease, as is shown by its appearance among the nomadic races above referred to as soon as they abandon their wandering life.

Also, it is known to vary according to differences in locality or climate; its spread being favored by vitiated and damp air and a moist soil, and retarded by purity and dryness of the air, and a large amount of sunshine. In view of these facts, it seems probable that tuberculosis acts as does any other infectious dis-

ease, being most prevalent where the conditions favoring its spread most obtain; and that the presence of these conditions, more than racial or individual susceptibility, are the important factors favoring its prevalence. This view is supported by the death-rate from this disease of the community under consideration.

For some months previous to their arrival at Mount Vernon Barracks, and during the first four years of their stay there, all the conditions most favorable to the spread of the disease existed; and the deaths from it ran as follows: First year 11, second year 4, third year 18, fourth year 18, fifth year 27.

During the fifth year, though the condition of the Indians was greatly improved, the number of deaths from this disease was greater than before, as the disease had gained such a foothold during the preceding four years that no decrease could be looked for in so short a time. The disease is so slow in development and in running its course, that when unusually prevalent in a community, no sudden return to ordinary rates can be expected, but only a slow decline made possible by most thorough sanitary measures.

Whether the system of disinfection and enforced cleanliness now being carried out in this community together with its bettered condition, will be effective in staying the ravages from this disease remains to be seen, for the unfavorable conditions of changed climate and altered modes of life still remain.

It is to be hoped, however, that this most insidious of diseases can be controlled by the means taken and notwithstanding that the past five years have shown a steady increase of the disease, due to the presence of all the conditions most favorable to its spread, that the following years, through the absence of many of these conditions and the use of suppression methods, may show a steady decline.

Should such decline occur, it will be of interest in that it will show the adaptation of the community to its new environment, and the effectiveness of modern sanitary methods, when enforced.

THE NEED OF AGREEMENT ON THE LIMITS OF THE ABDOMINAL REGIONS, AND A PROPOSITION FOR A NEW METHOD OF DIVISION.[1]

BY FREDERICK HENRY GERRISH, M.D., OF PORTLAND, ME.,
Medical Department of Bowdoin College.

THE surface of the abdomen, as viewed from the front, is very extensive, and presents in the normal condition few features which are at once obvious and constant. Indeed, the only one which is invariable is the navel. The depression called scrobiculus cordis is often lacking; the exact line of the groin must sometimes be searched for with care; the capillary embellishment of the pubes is absent in childhood; the linea alba, the lineæ semilunaris, and the sloping margin of the thorax are frequently obscured by corpulence. The umbilicus alone, while varying in size and depth, is always present. The need, therefore, of some artificial markings to aid in the localization of parts or objects upon, within, or behind the parietes must have been felt by the early students of anatomy. Just at what period any such drawing of lines of latitude and longitude as at present obtains was begun, I am unable to declare, my opportunities for investigating this matter having been too limited to determine the point. It is sufficient for my purpose, as a practical anatomist, to know that such a method has been in vogue for more than a century, and that its universal adoption is evidence of the recognition of its value. Nobody now would wish to be deprived of the terms of convenience which this plan has fastened upon our nomenclature; but doubtless everybody who studies the subject would be glad to have these terms made so definite that there would be no room for doubt as to the exact meaning and the limits of application of each of them. It must be acknowledged, though the confession is not creditable to the scientific pretensions of anatomy, that there is a grievous lack of uniformity in the method of drawing the lines by which the anterior abdominal wall is mapped out into regions.

Having been for a long time annoyed on this account, I have had the curiosity to make a careful examination of the statements of the writers of the works most easily accessible to me, who make any mention of the matter. Though it is quite possible that search through a larger collection would reveal a still greater number of variations on the simple theme, the dozen which I am about to quote abundantly sustain the thought which I have made the title of this essay; and I have, therefore, forborne to make so unnecessary, and hence unwarrantable, a tax upon your patience as more extensive quotation would involve. One does not have to eat a whole cheese to get its flavor.

Before proceeding to a detailed presentation of the facts, it is well to place clearly before us the purpose in view in the creation of these artificial areas. This is so well stated in Quain and Wilson (Pancoast's edition, 1842) that I quote their words:

"The larger or upper compartment of the abdomen is subjected to what may be called a technical subdivision into regions; not that there are any septa or partitions between them, but because of the many important parts which are contained in it, and which require to be minutely described.

"It must be obvious that the very purpose and intent of marking out these lines show that they are not confined to the surface on which they are drawn. They are on the contrary supposed to be projected into so many planes, forming partitions, which divide the cavity into compartments, each containing a certain portion of the abdominal viscera."

Although not every author as distinctly expresses this idea, it is obvious that the conception of projected planes is entertained by all, for otherwise there would be little point in the artificial subdivision of the surface. As Bell says (fourth American from fourth English edition, New York, 1822): "To give greater accuracy to the description of the seat of the viscera, or, perhaps, rather more strictly to connect the knowledge of the internal parts with the outward marks of the belly," is the object of the arbitrary drawing of imaginary lines. All authors speak of certain organs as being situated in specific regions, which, of course, could be true only on the supposition of the extension of the

[1] Read before the Association of American Anatomists at Princeton, N. J., December, 1892.

Last spring, during my annual course of lectures in the Medical Department, Bowdoin College, I told the class of my purpose to read this paper, for which the materials were then substantially collected, at this meeting of the Association. I had never seen or heard of a proposition looking towards agreement on the boundaries of the abdominal regions; and my first knowledge of any such was received after I had forwarded the title of this essay to our Secretary, who immediately kindly informed me of the intention of one of our colleagues to write on the same subject, and sent me a copy of the paper of Professor Anderson. I have, however, not read a line of the latter, in order to be absolutely free from the imputation of plagiarism.

lines straight backward to the posterior wall of the abdomen.

The discrepancy in the drawing of the dividing lines between the various regions is very marked, and almost every possible variation, consistent with the general plan which actuates every method, is presented for our adoption. The greater part of the authors seem to make an effort at exactitude, though with a degree of success which is not altogether admirable; while others content themselves with the establishment of the vaguest boundaries. A good example of the latter class is Fyfe (1800), whose description is worthy of extended quotation:

"It (the abdomen) is distinguished into three Divisions or Regions, termed Upper, Middle, and Under Regions; each of which is subdivided into three others.

"The Upper Region begins opposite to the Cartilage Ensiformis, at a small depression called Scrobiculus Cordis, or Pit of the Stomach, and extends to about a hand-breadth from the Umbilicus or Navel.

"The middle of this Region is termed Epigastrium, or upper part of the Belly, and the two lateral parts Hypochondria, from their lying under the Cartilages of the False Ribs.

"The Middle Region occupies an equal distance above and below the Umbilicus. The middle part of it is called the Umbilical, and its lateral parts the Lumbar Regions or Loins.

"The Under Region begins where the middle one terminates, or at a line drawn between the superior anterior Spinous Processes of the Ossa Ilii, and forms in the middle the Hypogastrium, or bottom of the Belly, and at the sides, the Iliac Regions."

In this description there is not the slightest approach to precision; and the only semblance of such approximation occurs in the implication that the level of the anterior superior supinous processes is a hand's breadth below the navel — an idea which needs no comment, whether a "hand" (four inches) is meant, or the actual breadth of hand of the special person who conducts the measurement. The most that we get out of this account is this: the front surface of the belly is to be considered as mapped out into nine regions of indefinite boundaries and widely varying and undetermined areas.

As a type of the class who attempt accuracy, we may take Quain (1882 edition), who draws the two horizontal lines respectively "at the level of the lowest part of the wall of the thorax," and "between the highest points of the iliac crests"; and the lines dividing these vertically "upwards on each side from the middle of Poupart's ligament."

Between these extremes of vagueness and precision are numerous grades of indistinctness. The upper horizontal line is drawn "opposite the cartilages of the ninth rib," "parallel with the cartilages of the ninth ribs," "over the ninth costal cartilages," "between the cartilages of the tenth ribs," between "the most prominent point of the cartilages of the ribs," "from the inferior margins of the ribs," "across the base of the thorax." The lower horizontal line is drawn "on a level with the most prominent part of the crest of the hip-bone," "the crista of the ilium," and "between the iliac crests."

The lines dividing the zones are made to pass "from the cartilage of the eighth rib to the centre of Poupart's ligament," "from the spines of the pubis to the cartilages of the eighth ribs," and "from the middle of the groin vertically."

At the first glance I may seem to be in error in speaking of the most of these rules as being vague; but my reason for considering them so will be seen when I call attention to the facts that each of the cartilages mentioned presents so extensive a margin as to permit a variation of five centimetres, more or less, for the choice of the student in selecting a starting-point for his measurement; that the anterior margins of the ribs, as distinguished from their cartilages, are practically impossible of ascertainment through their natural coverings; that the most prominent point of the costal cartilages is not the same in different people that there is large room for difference of opinion as to what is the most prominent part of the crest of the ilium; and that "groin" is a word of elastic application.

Some authors give exact directions, but differ vastly among themselves.

An influence which augments the confusion of the student's mind in these premises is exerted by the dictionaries. One says that the epigastrium is "the abdominal wall in front of the stomach," and another, "that part of the abdomen immediately over the stomach and below the diaphragm." One gives the following extraordinary definition of the iliac region: "The side of the abdomen between the ribs and the hips"; and of the umbilical, "That portion of the abdomen two or three inches above, below and on each side of the umbilicus"; and so on, to the great weariness of the spirit.

This dire confusion must suggest the necessity of agreement among anatomical teachers concerning the limits of the regions, which long usage and general consent admit are important. Consequently, I venture to suggest the adoption by this Association, which includes so large a number of the prominent specialists in anatomy in this country, of a system by which these regions may be described uniformly in all of our schools. The influence of our action would be felt abroad, especially if we were to request conference with similar societies in other lands.

The plan which I offer and defend may not meet with your approval; but I trust that some plan will be adopted, as I believe that the credit of modern anatomy requires a radical reform of our present slovenly method.

I propose that the dividing lines be drawn as follows:

The upper horizontal at the level of the lowest point of the inferior margin of the tenth costal cartilage.

The lower horizontal at the level of the anterior superior spinous process of the ilium.

The lines intersecting these from the middle of Poupart's ligament on each side perpendicularly.

In support of this drawing of the upper horizontal, I submit these advantages:

The ease with which the lower margin of the tenth costal cartilage is located.

The perfect definiteness of the directions, which is not attained by mentioning any particular cartilage, without specifying a point upon it.

The anatomical propriety of allowing as large an area as this permits for the upper zone, thus giving a nearer approach to uniformity of width in the three zones.

The fact that this drawing is recommended by some of the ablest authors, such as Bell, Quain and Leidy.

For the lower horizontal line I claim these meritorious points:

Absolute definiteness.

The facility with which the anterior superior spinous process of the ilium is found.

The approximation to uniformity of width of the three zones, which this method ensures.

The localizing of the navel more nearly at the vertical centre of the umbilical region, than is accomplished by having the line pass below the highest points of the iliac crests, as advised by Gray, Quain, Leidy, and others, who thus bring the umbilicus into the lowest part of the region to which it gives the name, and often on the line separating this from the region immediately below.

The fact that this drawing has the support of prominent teachers, like Bell, Owen, Macalister and McClellan.

My arguments for the intersecting lines proposed are as follows:

The middle of Poupart's ligament is easily determined.

The selection of this point is better than that of the bony prominence to which its outer end is attached (as practised by Bell and Cloquet), because we thus cause this line to divide the lowest zone into three regions, as in the case with the upper and middle; and make it divide the other zones much more equally. Only a little room is left for the hypochondriac and lumbar regions if the line is drawn perpendicularly from the anterior superior iliac spine.

The choice of this point is also better than that of the osseous process to which the inner end of the ligament is fastened, as advocated by Macalister and McClellan, because, if the line be drawn perpendicularly, the lateral boundaries of the central region of each zone become too close; and, if it be drawn to the cartilage of the eighth rib, as recommended by these writers, it is less definite, because no point on the cartilage is specified, and it is harder to carry abstractly in mind an account of its obliquity. It is worthy of remark in this connection that the difficulty, upon which I have insisted in the matter of the directions which merely mentions a costal cartilage, is strikingly shown in the picture which accompanies the description of the abdominal regions in that splendid and most recent American addition to our anatomical libraries, wherein we find the text and the drawing in disagreement. If a mistake is so readily made by so painstaking an author, who is also his own artist, in a picture which delineates the cartilages in outline, how difficult it must be for an ordinary practitioner, who is not an expert in anatomy, to avoid such errors in the case of a patient whose thoracic framework is "padded round with flesh and fat."

The perpendicularity of the line is an obvious advantage: first, because it is so simple and, therefore, easy to remember; and, second, because it makes rectangles with the lines which it crosses, and thus contributes to uniformity of outline and comfort of memory. It is true that a line thus drawn will not in all cases strike the same point on the thorax — it will be further away from the linea alba in women than in men, on account of the relatively wider pelvis and narrower chest in the female sex. But no rule in this matter will give absolute results, and the one proposed is as free from disadvantages as any other can be.

There is only one point to remember — the middle of Poupart's ligament. Those who name a point on the chest wall for the other end of the line add an element of difficulty to the task of the student, and can be by no means positive that the resulting line will be vertical. It is a method taught by distinguished anatomists, as Quain and Owen; and others, like Ellis and Gray, make the middle of Poupart's ligament one of the two points between which they draw each of these subdividing lines.

It will be observed that each of the component parts of this plan has the sanction of some illustrious authority; but their association does not occur, as far as I know, in the method of any writer.

In this system only three anatomical points require to be remembered — the lowest point of the tenth costal cartilage, the anterior superior iliac spine, and the middle of Poupart's ligament. I think that it will compare favorably with any other method in respect to theoretical simplicity, accuracy and uniformity of results, and practical applicability.

In this connection it is fitting that something be said about the names which are applied to the different regions.

The central region of the upper zone and the region on each side of it are called respectively epigastric and hypochondriac, by universal usage, except when the cognate terms, epigastrium and hypochondrium, are used. The central area in the middle zone is always named umbilical, and its lateral associates lumbar, by an almost equally unvarying custom. In the lowest zone the central region is generally designated hypogastric or the hypogastrium; but certain authors prefer pubic.

The sanction of ancient custom weighs with me in determining my choice of hypogastric, particularly as it seems to me so desirable to have the word pubic reserved for that area which, in the adult, is covered with hair, and includes not only the lower part of the hypogastric region, but also the bodies of the pubic bones and the structures in front of them.

Iliac is most frequently the adjective applied to the side areas in the lowest zone, though inguinal is preferred by some writers. My choice is the former, inasmuch as a part of the region is not groin, and all of it is neighboring to the hip-bone. Inguinal may well be applied to the long, obliquely situated area, which is located partly above and partly below Poupart's ligament — is, as it were, threaded upon the ligament — and is as much a portion of the thigh as of the abdomen.

In conclusion, a few words may appropriately be spoken in answer to an anticipated objection to this plea for uniformity and accuracy in the delimitation of the abdominal regions.

It has thus far been assumed that the mapping out of regions by imaginary lines is desirable; but I have heard it said that this is useless, because the contents of the designated regions are not the same in all cases.

Considerable variation is admitted; but it is probably not greater than obtains in many other cases in which the desirability of artificial aids to precision is universally admitted. In anatomy we do not look for mathematical accuracy and absolute uniformity, but only for approximations. Our rules are based upon the usual, not upon the invariable. And there seems to me to be no good reason why some uniform method of division of the abdominal surface may not be agreed upon by the anatomical world, which shall be of essential service in the direction of simplification and precision in the description of the relation of the viscera to the parietes and to each other.

DELIMITATION OF ABDOMINAL REGIONS.

BY E. A. BALLOCH, A.M., M.D.,
Medical Department, Howard University, Washington, D. C.

Professor Anderson's communication to the Anatomical Society of Great Britain, in May last, pleading for uniformity in the delimitations of the regions of the abdomen, draws attention to a matter which is of considerable importance to practical anatomists.

As he clearly shows, there is a complete lack of uniformity among anatomists, both as to the boundaries and contents of the region thus artificially outlined. The starting points from which the lines are drawn are likely to vary in position, and no less than fourteen different subdivisions have been made.

Professor Anderson rightly characterizes this confusion as "chaos."

The question is: Can we simplify this subject and agree upon a subdivision acceptable to all?

I take it that our purpose, as teachers, is to adapt anatomy to the daily needs of the practitioner. Now, as a matter of fact, it is my observation that in anatomy, as applied to daily practice, these artificial subdivisions are seldom used.

In treating abdominal diseases or injuries, the practitioner will, in most cases, refer to the umbilicus and the median line of the abdomen as starting points, and designate the lesion with reference to these landmarks. References need only be made to tumors of the pylorus, aneurisms of the abdominal aorta, McBurney's tender point, the incisions for abdominal section, etc. This being the fact, we, as anatomists, should seek to make our artificial divisions of the abdomen conform to the needs of the practitioner as demonstrated by his daily routine.

It must be apparent to all, that the first thing to do is to simplify the division of this region as to number. Nine subdivisions are too many, and this refinement of subdivisions is not needed by those for whose benefit it was presumably made.

Secondly, the boundaries of the subdivisions must be fixed points or, at least, such as are not subject to any great variation in position. Lastly, the subdivisions should be made to conform to the daily needs of the practitioner.

Ophthalmologists have for many years divided the surface of the cornea into quadrants, and lesions in this locality are referred to the upper or lower, outer or inner quadrant, as the case may be, and such reference is perfectly understood by all. So far as I have observed, this plan works well. I see no reason why some such simple subdivision of the abdomen cannot be made.

A line from the symphysis pubis to the ensiform appendix would answer for a vertical, while the horizontal plane could be made at the umbilicus.

The boundaries of these spaces can be outlined with almost equal exactness on the dorsum, where the vertebral column marks the vertical plane, while the horizontal would fall between the third and fourth lumbar vertebræ.

This would give four regions whose boundaries would be reasonably well fixed and not subject to any marked variation. They could be designated as upper and lower, right and left quadrants; and this plan would be an improvement on the present methods of subdivision.

It might be objected to such a division that the vertical plane would bisect the stomach, bladder and uterus, and throw part of these organs into one quadrant and part into another. As to the stomach, this objection lies equally against the present subdivision. As to the bladder and uterus, they are really more pelvic than abdominal viscera, and I think the objection would hardly have much weight from a practical standpoint.

The British Society appointed a committee to consider this matter, with a view to arriving at a uniform plan of delimitation of the regions of the abdomen.

I think we might properly co-operate with this committee, as the question is one equally important to us and to them.

[1] Read before the Association of American Anatomists, December, 1892.

Medical Progress.

RECENT PROGRESS IN MEDICAL CHEMISTRY.

BY WILLIAM B. HILLS, M.D.

FORMATION OF GLYCOGEN FROM DIFFERENT SUGARS.

C. Voit, Otto, Abbott, Lusk, and F. Voit[1] have investigated the formation of glycogen and the changes which sugars undergo in the alimentary canal. From the examination of previous and the present researches on glycogen formation in the liver, it is believed that glycogen may originate in two ways; first, it is a temporary store of carbohydrate food, and secondly, it may be the result of proteid metabolism. The present research was performed on animals (rabbits, hens) in which the hepatic glycogen had been reduced to a minimum by starvation, and relates chiefly to the former of the two sources of glycogen just alluded to. Large doses of different sugars were given. Dextrose lævulose, cane sugar, and maltose increased the hepatic glycogen; lactose and galactose did not, or only very slightly.

Cane sugar and maltose are inverted in the alimentary canal. Lævulose, lactose, and galactose are absorbed as such, and after large doses pass as such into the urine. The liver appears unable to form glycogen from sugars which, like lactose and galactose, do not pass into the condition of either dextrose or lævulose. In fact, these appear to be the only forms of sugar which, when present in the blood, lead to the storage of glycogen in the liver. When subcutaneously injected, the hepatic glycogen rises in amount. No other form of sugar behaves in this way. Regarding lævulose, the liver cells must either form glycogen from it directly or after previously changing it into dextrose.

BEHAVIOR OF LACTOSE AND GALACTOSE IN DIABETICS.

F. Voit[2] finds that lactose causes an increase of the sugar in diabetes. The patient upon whom the experiment was made was taking strict diet, and the amount of sugar in the urine was reduced to a low ebb. The following explanation is given by the author: — Before the sugar was given, the small amount of diabetic sugar in the urine must have originated from proteid

[1] Journal of the Chemical Society, 1892, page 902, from Zeit. Biol., xxviii, page 245.
[2] Loc. cit., 1892, page 903, from Zeit. Biol., xxviii, 353.

metabolism. Lactose appears in the urine more readily than any other form of sugar, not because it is burnt in the organism with greater difficulty, but as it is a form of sugar from which it is not possible for the liver to make glycogen, its "assimilation limit" is low, and so it passes unused into the urine. In fact, in diabetics it appears to be more readily burnt in the body than dextrose, and takes the place of some of the dextrose originating from proteid metabolism. Hence, when lactose is given, a large quantity of dextrose remains unburnt, and passes as such into the urine.

The same results were obtained in experiments with galactose.[3]

PHYSIOLOGICAL ACTION AND CHEMICAL PROPERTIES OF PENTOSES.

In view of the dieting of diabetic patients, W. Ebstein[4] has undertaken to investigate the physiological action of various forms of sugar. The present research relates to the two penta-glucoses or pentoses, xylose and arabinose.

Xylose, dissolved in water or coffee, or in the solid state mixed with the food, was given to various people. It appears that xylose is not assimilated, even when taken in very small quantity, and it can be recognized in the urine within an hour or two after the administration of 0.5 grammes. This is true both for healthy and diabetic persons. One received 25 grammes of xylose; in the next twenty-four hours 9.5 grammes were found in the urine, and the excretion continued for the two following days. Arabinose gave practically the same results. These substances have apparently little or no food value.

Salkowski's[5] experiments on rabbits show that arabinose is absorbed from the alimentary tract very rapidly and completely. It is, however, very slowly oxidized in the system. About one-fifth of the amount ingested is eliminated unaltered with the urine. A small amount can be detected in the blood, a larger amount in the muscular tissue. There is no evidence that glycogen can be directly manufactured from the absorbed pentose. The urine may at times give the characteristic tests for pentoses, as a result of the use of fruits, such as pears, that contain pentosanes, the mother substances of pentoses. This condition must not be confounded with diabetes.

Pentoses reduce Fehling's solution, Nylander's reagent, and form osazones with phenylhydrazine. They also give the following characteristic reactions: (1) By distillation with hydrochloric acid they yield furfuraldehyde. (2) A solution mixed with an equal volume of concentrated hydrochloric acid and then with a solution of phloroglucinol in equal parts of hydrochloric acid and water, and warmed, gives a beautiful red color, which gives a dark absorption band to the right of the D line. Salkowski states that the red color appears first at the surface, and gradually extends down into the liquid; and that the red coloring matter is dissolved on shaking with amyl alcohol. 0.5 per cent. of arabinose can be very easily detected by this test; 0.1 per cent. is recognized only with difficulty.

The amount of pentoses in the urine can be estimated by Fehling's solution, after any glucose that may be present has been removed by fermentation with yeast. 1 milligramme xylose equals 1.9 milligrammes copper; 1 milligramme arabinose equals 1.95 milligrammes copper.

TESTS FOR SUGAR IN THE URINE.

G. Hoppe-Seyler[6] has proposed a new test for sugar in the urine, depending upon the formation of indigo-blue when orthonitrophenylpropiolic acid is boiled with alkalies and reducing substances like dextrose. The test is made by boiling ten drops of the urine for fifteen seconds with 5 c. c. of the reagent (0.5 gramme of the acid and one gramme sodium hydrate in 100 c. c. distilled water). The test serves to detect sugar in urines containing 0.5 per cent. of this substance.

Normal urines do not give a blue color with this reagent, but a green color may be obtained. Albumen does not interfere with the reaction, unless there is more than two per cent. present, when it must be removed by precipitation with lead acetate. The reagent failed to give good quantitative results in the author's experiments.

Gerrard[7] states that when to a volume of Fehling's solution there is added just sufficient potassium cyanide to discharge the blue color, and the liquid is mixed with a second equal volume of Fehling's solution, grape sugar will produce no precipitate in the boiling mixture, but its gradual addition causes a steady disappearance of the blue color, and at the sharp end change the glucose value will be found approximately equal to half that of ordinary Fehling's solution. The author's explanation is, that the double potassium and copper cyanide formed in the first instance, being a solvent of the cuprous oxide, prevents its precipitation when formed by the action of the glucose on the second volume of the Fehling, in which reduction is presumed to take place as in the ordinary method. In practice, he keeps three solutions in separate bottles, as follows: (1) Copper sulphate, 69.3 grammes, water to 500 c. c. (2) Rochelle salt, 175 grammes; sodium hydrate, 76.56 grammes, water to 500 c. c. (3) Potassium cyanide, 33 grammes (or a sufficiency), water to 500 c. c. For testing, 5 c. c. of each solution is mixed with 50 c. c. of water, and to this liquid, boiling in an open vessel, the grape sugar is added until the blue color disappears. In case any precipitate is formed, the cyanide solution must be strengthened.

LOCALIZATION OF MERCURY.

Ullmann[8] finds that the distribution of mercury in the organism always follows the same laws whatever the dose or the form of administration. The largest amount of mercury is found in the kidneys, liver and spleen, in the order given. As regards the digestive tract, the stomach contains very small, but weighable quantities, whilst more is found in the small intestine, and still more in the large intestine. Small weighable quantities are found in the heart and skeletal muscles, and, in individual cases, also in the lungs. The brain, salivary glands, abdominal gland, thyroid gland, bile and bone substance contain unweighable traces, or, with small doses, not even a trace of mercury.

DETECTION OF ATROPINE.

L. Fabris[9] reports the following case. A patient at a hospital in Padua, who had for some time been treated by daily injections of six milligrammes of

[3] Journal of the Chemical Society, 1893, page 177, from Zeit. Biol., xxix, 147.
[4] Loc. cit., 1892, page 1506.
[5] Centralblatt f. d. med. Wissenschft., 1892, page 593.
[6] Zeitschrift f. physiologische Chemie, xvii, p. 83.
[7] Journal of the Chemical Society, 1893, p. 249.
[8] Loc. cit., 1893, p. 217.
[9] Loc. cit., 1892, p. 1,534; from Gazetta, 22, i, 347-350.

strychnine nitrate, died a few hours after receiving an accidental injection of three milligrammes of normal atropine sulphate, exhibiting acute symptoms of atropine poisoning. At the post-mortem, the presence of bilateral mydriasis, and of congestion of the meninges and of the cerebellum became evident. On examining the viscera by the Stas-Otto method, clear indications of the presence of an alkaloid were obtained, but on applying the special reactions for strychnine and atropine, the results were negative. To test the possibility of these alkaloids obscuring each other's reactions, mixtures of three per cent. solutions (the strength of the injections) of strychnine nitrate, and atropine sulphate were tested with sulphuric acid and potassium dichromate, and by Vitali's reaction, with the following results. A mixture of equal parts of the solutions gave the strychnine reaction very clearly, but the atropine reaction not at all; a mixture of one of strychnine with three of atropine gave the strychnine reaction, but not that of atropine; a mixture of one of strychnine with four of atropine gave indistinct reactions for both alkaloids; a mixture of one of strychnine to five of atropine gave a momentary atropine reaction; the characteristic violet coloration is, however, immediately superseded by a reddish tint. Vitali's reaction was not clearly obtained until, at least, nine parts of the atropine solution were added to one of strychnine. It further appeared that a solution of strychnine too dilute to give the characteristic reactions of that alkaloid may effectually obscure the atropine reaction; thus one drop of the three per cent. strychnine solution diluted with ten drops of water scarcely yields the strychnine reaction; on adding four drops of atropine solution to this, no reaction for atropine could be obtained.

A piece of meat injected with 0.05 c. c. of a three per cent. solution of each of the alkaloids, and extracted by the Stas-Otto process, yielded a barely sensible strychnine reaction, and no trace of atropine. Finally, on injecting a mixture of three parts of the three per cent. strychnine solution and one part of the atropine solution into a frog, paralysis of the lower limbs and a great augmentation of the nervous sensibility ensued: on introducing the mixture into the eye of a dog, distinct mydriasis was observed in fifteen minutes. It thus appears that in cases of poisoning by atropine, the physiological evidence may be conclusive when the chemical tests yield doubtful results.

THE ACONITE ALKALOIDS.

W. R. Dunstan [10] in conjunction with E. F. Harrison has continued the research to which reference was made in a previous report.[11] In the present paper, they describe the properties of isaconitine (the alkaloid to which the name *napelline* was assigned provisionally), and the process for separating it from aconitine, and also from another amorphous alkaloid closely resembling it, which has been provisionally named homonapelline.

The investigation of the physiological action of the alkaloids of *A. Napellus* has been undertaken by Professor Cash, of Aberdeen. His investigation is not yet completed, but preliminary results, obtained by a comparison of the physiological action of aconitine and isaconitine, show that the behavior of the two alkaloids, although in some respects similar, is generally distinct. Moreover, whilst aconitine is a most violent poison, even in excessively minute doses, isaconitine is only toxic to small animals when exhibited in comparatively large doses.

[10] Journal of the Chemical Society, 1893, p. 443. Transactions.
[11] Journal, August 11, 1892, p. 138.

ELIMINATION OF CARBONIC OXIDE.

L. De Saint-Martin's [12] experiments show that the elimination of carbonic oxide is at first very rapid, but quickly diminishes, becoming very slight at the end of the third hour. From 5 to 6 per cent. of the absorbed carbonic oxide is, however, never eliminated as such, but undergoes alteration in the living tissues, and is probably converted into carbonic anhydride.

TOXIC ACTION OF EXPIRED AIR.

Experiments of Haldane and Smith [13] fail to support Brown-Séquard's hypothesis that expired air contains a special organic poison. The authors draw the following conclusions from experiments on human beings:

(1) The immediate danger from breathing air highly vitiated by respiration arises entirely from the excess of carbonic anhydride and deficiency of oxygen, and not from any special poison. Experiments on animals, consisting of injecting the products of respiration into them caused no more ill-effect than the injection of distilled water.

(2) Excess of carbonic acid rather than deficiency of oxygen is the more potent cause of hyperpnœa and headache.

HYDROCYANIC ACID.

Since hydrocyanic acid is oxidized to oxamide by hydrogen peroxide, experiments were made by P. Krohl [14] to see if the latter substance could be employed as an antidote in the case of hydrocyanic acid poisoning. These experiments were successful, and the acid, in larger quantity than the fatal dose, was administered to dogs and cats, and its effects stayed by means of hydrogen peroxide. The experiment could be made daily for weeks together without permanently injuring the animal. Moreover, the acid could not be detected in the urine after application of hydrogen peroxide, whereas it is present in ordinary cases of hydrocyanic acid poisoning.

POISONING BY HYDROGEN SULPHIDE.

Lehmann [15] has established by an elaborate investigation, that the inhalation of 0.07 per cent. to 0.08 per cent. hydrogen sulphide in the atmosphere produces in man, in the course of a few hours, very dangerous symptoms; the presence of 0.1 to 0.15 per cent. causing death quite rapidly. 0.015 per cent. in the air can be inhaled for some hours without detriment; but more than 0.02 per cent. produces injurious effects. The system cannot be made to tolerate this gas; on the contrary, it becomes more sensitive upon repeated inhalations. Uschinsky [16] could not find any evidence that the gas acts as a hypnotic, as Schulz states.

[12] Journal of the Chemical Society, 1893, page 131.
[13] Loc. cit., 1892, page 1502, and 1893, page 223.
[14] Loc. cit., August, 1892, page 1019.
[15] American Journal of Pharmacy, 1893, page 70.
[16] Zeitschrift physiol. Chem., xvii, 220-228.

Cholera Precautions in Hamburg. — In order to take all precautions against the introduction of cholera to the city, the Hamburg authorities have ordered that only Russian emigrants who have cabin tickets to America will be allowed entry to their territory.

Reports of Societies.

THE ASSOCIATION OF AMERICAN ANATOMISTS.

MEETING at Princeton, N. J., December 27–29, 1892, D. S. LAMB, M.D., Secretary.

DR. F. H. GERRISH read a paper on

THE NEED OF AGREEMENT ON THE LIMITS OF THE ABDOMINAL REGIONS, AND A PROPOSITION FOR A NEW METHOD OF DIVISION.[1]

DR. E. A. BALLOCH read a paper on

DELIMITATION OF ABDOMINAL REGIONS.[2]

DR. THOMAS DWIGHT, of the Harvard Medical School, said that he was inclined to agree with Dr. Balloch rather than with Dr. Gerrish. While he thought the latter's method of dividing the abdomen the best that he knew, it was by no means perfect. The lowest part of the cartilage of the tenth rib cannot in all cases be certainly recognized, nor is it always in the same place. The position of the lines must be influenced by sexual and individual peculiarities, to say nothing of the effect of various degrees of distention of the abdomen. It is needless to say that the regions of the abdomen have no morphological significance, and in surgical practice the situation of a tumor is usually described by means of measurements from fixed points.

Dr. Dwight is in the habit of teaching that it is convenient to retain the customary names of these regions, but that it should be recognized that they are to be used vaguely, and that it is useless to pretend to define by sharp lines where one region ends and another begins.[3]

DR. GEO. A. PIERSOL, University of Pennsylvania: While appreciating fully the force of Dr. Dwight's remarks, yet the fact remains that the nine conventional divisions will continue to find place in our text-books. It is, therefore, very desirable that uniformity in the arbitrary boundaries adopted should prevail. The lines advocated by Dr. Gerrish offer the advantage of being largely determined by accessible skeletal points. Almost identical boundaries have been adopted by Joessel, who, however, assumes as the vertical lines perpendiculars erected from the ilio-pectineal eminences.

DR. CARL HEITZMANN, New York City: It seems to me that we will never come to an agreement in an open meeting, the more so, since the views held by German anatomists have entirely been neglected. Some take the nipples as starting points, joining the spinæ ilii anteriores. The best division seems to me that adopted by Hyrtl and others. He starts from the sterno-clavicular articulations, sending lines to the spinæ ilii anteriores. Then he joins transversely the lowest borders of the tenth ribs and both spinæ ilii; the region outlined by the lower borders of the ribs and the processus zyphoideus on the one hand, and the transverse line between the tenth ribs, he terms *epigastrium*; the region between the two transverse lines (tenth ribs and both spinæ ilii), he terms *mesogastrium*; and that between the transverse line uniting both spinæ and the upper border of the iliac bones, *hypogastrium*. The mesogastrium is subdivided by a horizontal line starting from the navel into a regio supra-umbilicalis and a regio infra-umbilicalis; the hypogastrium, by a vertical line into the mesial regio pubis and the lateral regio inguinalis. In my judgment, the papers should be referred to the Committee on Nomenclature, which, in due time, may report to the Association for final decision.

DR. D. S. LAMB, Army Medical Museum, Washington: I am inclined to favor the proposition of Dr. Balloch, to divide the abdomen into quadrants by a median sagittal plane and a horizontal umbilical plane. I do not see how any careful person can make a mistake concerning these planes. They are uniform for all subjects; assuming, as I do, that the position of the umbilicus, for all clinical purposes, is sufficiently uniform in its relations to neighboring parts. Besides the horizontal plane it corresponds very closely to the uppermost level of the iliac crest, the body of the fourth lumbar vertebræ and the aortic bifurcation. The only important viscera below this plane are the intestines and pelvic organs. The position of a point stated to be three inches to the right of the median line and three inches above the umbilical line in an adult, lying on his back, would be understood by every one, and be easily marked on a chart or on the body of another subject. If anatomists would state, for instance, that the pylorus is found on the average to be so far above and so far to the right of these respective lines, there would be no doubt in the mind of the reader as to the precise place indicated.

[1] See page 10 of the Journal.
[2] See page 13 of the Journal.
[3] For the views of some English anatomists as well as for a further statement of Dr. Dwight's opinion, the reader is referred to the last Report on Anatomy in the Journal of May 25, 1893.

AMERICAN MEDICAL ASSOCIATION.

FORTY-FOURTH ANNUAL MEETING, MILWAUKEE, WIS., JUNE 6–9, 1893.

(Concluded from Vol. cxviii, No. 26, page 650.)

THURSDAY, JUNE 8TH (CONTINUED).

The next thing in order was the Report of the Nominating Committee, which was read by the Chairman, DR. TRUAX, of New York. The committee recommended for

President, James F. Hibberd, of Richmond, Ind. First Vice-President, John A. Wyeth, of New York. Second Vice-President, I. N. Love, of St. Louis, Mo. Fourth Vice-President, U. O. B. Wingate, of Milwaukee, Wis. Treasurer, Richard J. Dunglison, of Philadelphia, Pa. Secretary, William B. Atkinson, of Philadelphia, Pa. Assistant Secretary, H. B. Ellis, San Francisco, Cal. Librarian, Geo. W. Webster, of Chicago, Ill. Editor Association Journal, J. C. Culbertson, Chicago, Ill. Trustees, J. B. Hamilton, Chicago; E. E. Montgomery, Philadelphia, Pa.; E. Fletcher Ingals, Chicago; L. S. McMurtry, of Louisville, Ky. Members of Judicial Council, X. C. Scott, Ohio; G. W. Stone, United States Marine-Hospital Service; J. T. Jelks, Hot Springs, Ark.; J. H. Murphy, of Minnesota; J. McFadden Gaston, Atlanta, Ga.; T. A. Foster, Maine; I. N. Quimby, New Jersey. Address on Medicine, C. H. Hughes, St. Louis, Mo. Address on Surgery, Ernest LaPlace, Philadelphia, Pa. Address on State Medicine, Geo. H. Rohe, Catonsville, Md. Place of meeting, San Francisco, Cal. Chairman of Committee of Arrangements, R. H. Plummer.

The nominating committee also recommended that the Secretary be paid an annual salary of $500.

It was moved and seconded that the report be adopted.

DR. ROHE moved to substitute Baltimore as the next place of meeting; but after ringing and enthusiastic speeches made by a member from California, DUDLEY S. REYNOLDS, of Louisville; LEARTUS CONNER, of Detroit; H. A. HARE, of Philadelphia; H. O. MARCY, of Boston; N. S. DAVIS, of Chicago, and F. W. MCRAE, of Atlanta, the report was adopted as read.

The Report of the Committee on President's Address was then read by DR. HIBBERD, indorsing in the form of resolutions, all the suggestions contained therein. On motion, the report was adopted.

On motion of SECRETARY ATKINSON, several Canadian physicians were made members by invitation.

DR. JOHN B. ROBERTS, of Philadelphia, offered a resolution to the effect that all amendments now on the calendar, be postponed until the meeting next year, to be taken up on the second day of the Association meeting in general session. Carried.

FRIDAY, JUNE 9TH.— GENERAL SESSION.

The Association was called to order by PRESIDENT MCGUIRE at 11 A. M.

DR. WALTER WYMAN, of Washington, D. C., read the Address on State Medicine. He selected for his subject "Extinction of Contagious Diseases." He said the history of the world shows that whole races of men and other animals have become extinct. Why should not races of microbes become extinct, and certain diseases that once ravished the earth in epidemic form have so lost their inherent strength or have been so controlled in the latter part of the nineteenth century as to warrant the belief that their histories are closed, or fast closing.

With regard to yellow fever, the great period of its history was from 1793 to 1805. Formerly it was of common occurrence in Europe, the ports of Spain in particular, suffering severely between 1801 and 1825, but there has been no disastrous epidemic of this disease in Europe since that of Lisbon in 1857, thirty-six years ago. Its earlier history in this country includes invasion, not only of the South, but of ports as far North as Pennsylvania, New Jersey, New York and even New Hampshire. But to-day, though constant vigilance against its introduction is necessary, it has practically vanished from the ports of the United States.

He said since the discovery of vaccination by Jenner in 1796, small-pox, though still a stubborn foe, no longer devastated without restraint. It is now simply a matter of choice whether one shall be made absolutely proof against this disease, and the good effects of a compulsory law regarding vaccination were seen in the statistics of Prussia, in which country, for six years prior to the enforcement of vaccination, the deaths from small-pox averaged 85 per 100,000 of the inhabitants, while from 1875 to 1886, after the law came into force, the yearly average was but two per 100,000.

Typhus fever flourished to-day in certain parts of Mexico, and was occasionally reported from the Old World. It was always a menace where large numbers of people were crowded together with unsanitary surroundings. But it has no permanent lodgment in the United States, and the energetic and successful measures instituted by the Board of Health of New York during the past winter to suppress this disease, although it appeared in a section of the city more densely populated than that of any other city in the world, were a striking example of what may be accomplished by proper law, energetic execution and scientific disinfection.

With regard to cholera, which was still an ever threatening menace, the history of the past few years had demonstrated most clearly its relation to filth and to contaminated food and water, both of which conditions required only the peculiar energy and love of cleanliness characteristic of the Anglo Saxon race. In recent years the superior sanitation of England, and the more perfect quarantine surveillance of the United States, had served to protect these two nations from this exotic disease. One possible agency in the elimination of these diseases, still young as a science, but not without promise, was protective inoculation. Whatever opinion may be held of Freire's inoculations for yellow fever, and Kitasato's and Haffkine's inoculations for cholera, the investigations of these and other bacteriologists in this particular field, warranted the hope that results would be attained equal in efficiency to vaccination for variola.

The permanent Secretary read an invitation from the American Pharmaceutical Association to send delegates to their meeting at Chicago, August 14, 1893.

The permanent Secretary presented from the General Business Committee the following resolutions, which were adopted by the said Committee, and were submitted for the approval of the Association:

Resolved. That no paper shall be read by title in any Section which is not actually in the hands of the officers of the Section, and that the Secretary of the Association be instructed to communicate this action to each Section.

Resolved. That the General Business Committee hereby request the officers of Sections to communicate to this Business Committee any general resolutions passed relating to the conduct of the Sections.

Resolved. That we recommend that the Treasurer and Committee of Arrangements adopt measures to secure, by courteous circular letters, as large a registration of members as possible by mail three or four weeks before each annual meeting. Also that one month after the annual meeting, each member who has not paid his annual dues, be sent a notice that dues have not been paid, and that he be requested to remit the same; further, that similar notice be sent at each of the two succeeding months to those who do not remit; and that those who still fail to remit, be drawn on at sight at the beginning of the next month, having been notified that they would be thus drawn on at the time specified.

Unanimously adopted.

From the Section of Materia Medica and Pharmacy a resolution was offered and adopted to the effect that the American Medical Association recommend that the next edition of the "United States Pharmacopœia" soon to be issued, be at once practically adopted by physicians in prescribing and pharmacists in compounding. It also advises the general adoption by physicians and pharmacists of the "National Formulary," issued by the American Pharmaceutical Association, and that the teaching medical and pharmaceutical colleges adopt these works as text-books.

DR. J. E. BOYLAN offered the following amendment to By-law Number II, relating to Sections. The first clause of paragraph 5 shall be amended to read:

"It shall be the duty of every member of the Association who proposes to present a paper or report to any one of the Sections, to forward either the paper or a title indicative of its contents and its length, to the Secretary of said Section, at least one month before the annual meeting at which the paper or report is to be read." Adopted.

A communication from Dr. J. M. Toner, of the Committee on Jenner Centennial, reported progress, and asked permission to fill a vacancy in the Committee owing to the death of Dr. T. F. Wood, of North Carolina.

The report was received and permission granted.

The President announced delegates to the Eleventh International Medical Congress at Rome, and also a delegate to the American Pharmaceutical Association in the person of Dr. Frank Woodbury, of Philadelphia.

On motion the President and permanent Secretary were granted authority to appoint other delegates, if deemed desirable.

The permanent Secretary read the following as officers of Sections.

Surgery and Anatomy: Chairman, J. B. Roberts, Philadelphia; Secretary, F. W. McRae, Atlanta, Ga.

Practice of Medicine: Chairman, H. A. Hare, Philadelphia; Secretary, W. H. Washburn, Milwaukee.

Obstetrics and Diseases of Women: Chairman, Joseph Eastman, Indianapolis; Secretary, George I. McKelway, Philadelphia.

Neurology and Medical Jurisprudence: Chairman, J. G. Kiernan, Chicago; Secretary, Frank P. Norbury, Jacksonville, Ill.

Ophthalmology: Chairman, A. R. Baker, Cleveland, O.; Secretary, L. H. Taylor, Wilkesbarre, Pa.

Laryngology and Otology; Chairman, E. Fletcher Ingals, Chicago; Secretary, J. F. Fulton, St. Paul.

Materia Medica and Pharmacy: Chairman, Frank Woodbury, Philadelphia; Secretary, F. E. Stewart, Watkins, N. Y.

Diseases of Children: Chairman, W. S. Christopher, Chicago; Secretary, Frank A. Churchill, Chicago.

State Medicine: Chairman, Geo. W. Stoner, United States Marine-Hospital Service; Secretary, C. H. Sheppard, Brooklyn.

Dermatology and Syphilography: Chairman, A. H. Ohmann-Dumesnil, St. Louis; Secretary, L. F. Frank, Milwaukee.

Physiology and Dietetics: Chairman, I. N. Love, St. Louis; Secretary, E. Cutter, New York.

Oral and Dental Surgery: Chairman, W. H. Fletcher, Cincinnati; Secretary, E. S. Talbot, Chicago.

The President appointed as the Committee to confer with the American Public Health Association, Drs. U. O. B. Wingate, of Milwaukee; Jerome Cochran, of Alabama, and J. H. Parkinson, of California.

Dr. Robert Reyburn, of Washington, D. C., offered resolutions of thanks, which were unanimously adopted.

Dr. James T. Jelks resigned from the Judicial Council because he was already a member of the General Business Committee.

On motion the resignation was accepted.

President McGuire, in retiring, thanked the Association for the kind treatment extended him and to the permanent Secretary and others who had aided him so efficiently. He then introduced Dr. J. F. Hibberd, of Richmond, Ind., the President-elect, who assumed the chair in a felicitious manner, asking all to go to California next year and in every way to aid in building up the Association.

There being no further business, the Association adjourned to meet in San Francisco, Cal., on the first Tuesday in May, 1894.

Recent Literature.

Human Monstrosities. By BARTON COOKE HIRST, M.D., Professor of Obstetrics in the University of Pennsylvania, and GEORGE A. PIERSOL, M.D., Professor of Histology and Embryology in the University of Pennsylvania. Part IV. Philadelphia: Lea Brothers & Co. 1893.

A notice of the first three parts of this superb work appeared in the number of this JOURNAL for January 12, 1893, to which the reader is referred for a statement of the general plan, purposes and scope of this valuable addition to medical literature.

Part IV is fully illustrated with forty-six wood-cuts and ten photographic reproductions. The first thirty-three pages of text are devoted to the continued description of composite monsters. Of the dicephali, perhaps the most interesting are the Tocci boys, born in 1877, and still living in good health. Of the pygopagi, an interesting account is given of the Hungarian sisters, Helen and Judith, who lived to be twenty-two years of age, and also of the North Carolina and the Bohemian twins.

The most famous example of the xiphopagi is that of the Siamese twins, who are interestingly described: the text contains a photograph of the external appearances from a cast in the Mütter museum, and a plate (by Pancoast) of the internal anatomy. There is also an account of four operations for the separation of this class of monsters. Eighteen pages are devoted to double parasitic monsters, and there is a brief notice of triple monsters, of which only two or three authentic cases are recorded. The work is concluded with an adequate index, and a valuable bibliography referring to works on teratology, monographs, and journal articles.

As a whole the work is a great credit to the learning and industry of its authors, and a great credit, too, to American medical literature. The English-speaking profession are under obligation to the authors for placing within their reach in the vernacular the literature of this most interesting subject. C. M. G.

Modern Gynæcology: A Treatise on Diseases of Women. By CHARLES H. BUSHONG, M.D. New York: E. B. Treat. 1893.

The present volume compares favorably with many recent publications on the same subject, and is a suggestive and safe book to put into the hands of the student and general practitioner. The specialist will find it too elementary. It is on the whole well written, and covers the ground of medical and minor gynæcology pretty thoroughly. Many of the illustrations are old, and some of them crude. While there are many minor points on which we would not agree with the author yet in the main the teaching is sound.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, JULY 6, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

ORGANIC EXTRACTS: THE NEW DEPARTURE IN NEUROLOGICAL THERAPEUTICS.

IT was the privilege of some of the physicians of Boston to listen, some months ago, to a fresh and vigorous paper on the above subject, by Prof. C. L. Dana, of New York, well known as a progressive and independent student and teacher of neurology; and it is to this paper, since then published in our JOURNAL [1] that we wish to call the attention of our readers, as being a good introduction to an important subject.

Dr. Dana begins by pointing out how the last few decades have been for the neurologist a time so richly fruitful of refinements and discoveries in nosology and anatomical detail that his time and thought have been given but grudgingly to the study of the causes of disease and the art of healing.

But at last, through the influence of modern bacteriology and pathology, the tide is turning or has turned. No neurologist, as he rightly judges, can now afford to be ignorant of the doctrines of toxæmia, and phagocytosis, and sepsis, or of the vast changes which have come over the old conceptions of inflammation and degeneration, nor of the therapeutic suggestions to which these new views are leading.

Whether the fascinating deductions of Metschnikoff are wholly right or not, it is fair to conclude that the active cause of cellular degeneration and death is a poison, and that our duty as physicians is to learn how to assist the body in its struggle to destroy or arrest this poison, since we can do so little to repair its ravages. We have gone far enough for the present, in the observation of the dead cell under the microscope; let us devote ourselves more to getting rid of the poison that kills it, and be "humoralists" again for a time. Death from acute meningitis and encephalitis and myelitis is death from poisoning; and even the chronic inflammations and degenerations, and some of the chronic neuroses [2] are of similar origin.

How to arrest these causes of disease we are as yet almost wholly ignorant, but we may at least join hands with those who are studying "the applications of the ferments immunizing serum, extracts of normal tissues and organs, and antitoxines, from whatever source we can obtain them."

Dr. Dana has been using, since July, 1892, various animal extracts of the thyroid gland, and of the brain tissue; as well as the rabic virus and Hunter's modification B of tuberculin; and the summary of his observations is as follows:

Locomotor ataxia (brain extract), eight cases (six treatment complete, two discontinued). Four improved, two not improved.
Bulbar paralysis (brain extract), one case. Cured.
Progressive muscular atrophy in late stages (brain extract), three cases. Not improved.
Epilepsy (brain extract, rabic virus and testicular extract), five cases. Three improved, two not improved.
Two other cases whose course was known to me were improved.
Paralysis agitans (brain extract), one case. Not improved.
Tubercular tumor of brain (Hunter's modification B of tuberculin), one case. Not improved.
Basedow's disease (thyroid extract), one case. Symptoms increased.
Dementia (thyroid extract), one case. Improved.

The case of bulbar paralysis is given at length, and is highly interesting and important.

With this brief summary we must leave Dr. Dana's refreshing and straightforward paper, for the sake of discussing some aspects of the subject in a general way, and with reference, also, to a few other communications. We are heartily with him in his hopeful striving, and agree with him that "there is no more reason to doubt that there should be therapeutical properties in extracts obtained from animal organs than that there should be such from vegetable organs."

Indeed, it is possible to go much further than this. We have had efficient pepsine and pancreatine for many years; and the cure of myxœdema by thyroid extracts, even such as have passed through the crucible of the stomach and the filter of the intestinal walls, is an event to be counted upon (*mirabile dictu!*) as certain.

But while we wish well to the new therapeutics, and admit, in general, the doctrines on which it is based, we feel it a duty to assert that the facts do not seem to us to justify any such extravagant statements as those made by some of the advocates of the organic extracts.[3] Indeed, this is one of the cases where it is the duty of every considerative man to distrust even his own power of observation, and, still more, his own power of referring what he sees to its true cause. The time has not even yet come when we can say with safety that now we will wipe off the slate and begin to

[1] Modern Pathology and the Pathology of Nervous Diseases, with some Therapeutic Deductions and Experiments with Organic Extracts. Boston Medical and Surgical Journal, May 18, 1893.

[2] The recent Report in Neurology of the Johns Hopkins Hospital contains an elaborate contribution to the germ theory of chorea by Henry J. Berkeley; and in our issue of January 5, 1893, we collated some of the new views in this line as to the pathogeny of epilepsy.

[3] See the British Medical Journal from June 3d and 10th of this year, for Professor Brown-Séquard's most recent utterances on this subject.

count our observations as of permanent value. We must not forget that chapter in the long history of error, which deals with the suspension treatment of tabes. There is no marvel claimed for testiculine which cannot be fully paralleled by results clearly referable to hypnotism, and — take it as you will — the remarkable investigations of late years into this branch of psychology have shown that mental influences have an enormous power of removing symptoms of disease and changing nutritive conditions, and that it is extraordinarily difficult to be sure that we have eliminated them. It is, moreover, by no means those mental influences that appeal most obviously to the intelligence or to the imagination that exert the most effect. The powerful phantom of "suggestion" often stands behind the physician's chair, invisible alike to him and to his patient, though both of them believe that they have, Faust-like, discovered and used the spells which would have forced him to materialize had he been present.

It is true that the wonderful history of myxœdema and its treatment should make us ready for new developments in the same line, and anything that is equally attested will find itself equally accepted; but there is as yet neither experiment nor observation which place the results which are claimed to follow injections of testiculine and cerebrine on anything like the same plane.

Myxœdema we can cause and we can cure, with practical certainty, by removing or supplying the thyroid secretion. Can we cause and cure tabes or neurasthenia or arterio-sclerosis [4] with similar certainty, by removing the testes or by injections of spermatic extract?

Most of the signs of improvement have been such as were furnished by the patient's own feelings. It is said that many "cures" have been made; but in view of the fact that many failures to cure are likewise on record it is permissible to question whether the disease itself has been really cured at all. At any rate, this result does not occur as frequently as it does in myxœdema.

"Ameliorations" do not count for much, with a new remedy.

Castration causes a remarkable train of results, and it would be a reasonable and a highly interesting experiment to see if these could not be prevented or cured by testiculine, but neither the ox nor the eunuch is neurasthenic or tabetic.

It may eventually be proved by accurate physiological experimentation that testiculine does exert some powerful action on the nervous system. These proofs would be highly welcome, but they are not yet forthcoming.

It is significant that Professor Brown-Séquard concludes his paper by saying: "When we know how great, how various, are the morbid physical and dynamical attractions that the nervous system can produce, it is easy to understand that what it can do in one way it can also do in just the opposite way, so as to re-establish the normal state, physically and dynamically, and this may serve to explain the extreme variety of the favorable effects that may be due to certain liquids which increase considerably (as is proved) the power of the cerebro-spinal centres."

Not to speak of the uncertainty of the last assumption in this reasoning, the thought suggests itself whether, if the strengthened nervous system can work these varied effects, the argument in favor of unsuspected "suggestion" (or "expectancy," if the term be preferred), which is well-known to strengthen the nervous system, is not reinforced by these considerations.

This feeling had already grown up in our mind when we received a pamphlet by an Italian physician, Massalongo, Docent at the University of Padua, devoted to sustaining this view. Its title, which we give below,[5] sufficiently indicates the character of its contents.

We do not definitely take this ground,[6] for it would be a great misfortune if any investigation of value should be checked, and any opportunity omitted for increasing our therapeutic resources. There is nothing more improbable in the idea that disease should be cured by one organic fluid than that it should be caused by another; but it is a question of evidence in each case whether or not this is true, and a large amount of evidence is required to establish so new a proposition.

The study of toxines and antitoxines has opened men's minds amazingly. The life of a healthy man, well cared for and protected, runs on so smoothly that he does not dream how often he passes by the brink of lighter or severer self-intoxications; nor that it is his organic secretions that, for the most part, render him liable to these dangers and provide safeguards against them. Special conditions of the blood are unquestionably correlated, not only to the health of the tissues, but to the structure of the body as a whole. The lack of a few grains a day of thyroid juice makes the child grow up a cretin; the lack of the testis makes the bull-calf grow up an ox. It is said to be a special diet alone that is needed to make the queen bee develop from the worker.

We should gladly welcome the discovery of diets or organic ferments that can neutralize the causes of disease, but the pendulum ought not to be allowed to swing so fast and far that its inevitable return will occur with destructive force.

We are glad to hear of Dr. Dana's results, and glad to hear of the experiments going on in our own city. But some of the reports would almost make it appear as if we might hope to cure everything with anything, so long as the remedy bore the magic name of "organic." We do not believe that this will prove to be the case.

[4] See British Medical Journal, June 10th.

[5] Le Injezioni di Liquido Testicolare di Brown-Séquard et la Trasfusione Nervosa di Constantin Paul. — Un nuovo Capitolo di Terapeutica Suggestiva.

[6] See Editorial in this Journal, January 12, 1893.

MEDICAL NOTES.

The Drought in Europe. — Both England and parts of the Continent have suffered much from lack of rain-fall. In many places no rain of any consequence has fallen for over three months; many crops are ruined; much live-stock has been killed on account of the lack of food for them; and the water-supply of many towns has either given out or has been very much reduced. What water there is has become bad to drink, and in some places mild epidemics of typhoid have appeared.

Suicides in France. — The official report of suicides in France for the year 1891 shows that the total number was 8,180, or 21 per 100,000 inhabitants. Of this number 78 per cent. were males. The methods adopted appeared to differ much according to the sex. Hanging is a favorite method with men, more than half having got rid of themselves in this way, whereas drowning is chosen relatively more by women. The greatest relative difference was by firearms, which were chosen by 780 men and only 52 women, whereas poison attracted only 79 men and 104 women.

NEW ENGLAND.

Appropriations for Public Institutions. — Among the appropriations in the Loan Bill passed by the Boston City Government last week were the following: Boston City Hospital, for new buildings $400,000; Long Island Institutions and the Lunatic Hospital, each $100,000.

A Boylston Medical Prize for 1893 has been awarded to Drs. Wm. E. Hughes and Wm. S. Carter, of Philadelphia, for an essay entitled, "A Clinical and Experimental Study of Uræmia."

Massachusetts Medico-Legal Society. — At the annual meeting of this Society, June 13, 1893, the following officers were elected for the ensuing year: President, Dr. Z. B. Adams; Vice-President, Dr. S. W. Abbott; Recording Secretary, Dr. F. W. Draper; Corresponding Secretary, Dr. B. H. Hartwell; Treasurer, Dr. A. E. Paine.

NEW YORK.

Small-Pox. — On June 26th the State Board of Health was notified of the existence of fourteen cases of small-pox at Yonkers, on the Hudson. Six of the cases had their origin in the house where the first case reported was quarantined.

Revoked Charters. — The Board of Regents of the University of the State of New York have recently revoked the charters of the "College of Midwifery of the City of New York," and the "College of Massage," two institutions under the same management.

"Odi Persicos." — On June 24th, Goolam Kader, a notorious Arabian quack oculist, was held for trial in Special Session on a charge made by the Medical Society of the County of New York, of practising medicine without a license; bail being fixed at $500. A few days previously he had opened an office and inserted glowing advertisements in a number of newspapers, including several published in French, German and Italian. One of these attracted the attention of Dr. Ferdinand C. Valentine, an accomplished linguist, who, as the editor of *Medical Abstracts*, is in constant receipt of all the foreign medical journals; and he at once recognized the name as that of a quack who on account of his outrageous practises had been prosecuted in Genoa, Brussels, Cologne, Berlin and many other Continental cities. Dr. Valentine found from his reading that his favorite operation was that for cataract, and that in consequence of his so-called "cures" hundreds of cases of total blindness had resulted. He at once reported the fact of the man's establishing himself in New York to the County Medical Society, and the career of this dangerous charlatan here was quickly cut short. The other American cities will now have to be on the lookout for him.

Overcrowded Insane Asylums. — The Grand Jury having made some severe strictures upon the overcrowded and generally unsatisfactory conditions of the city asylums for the insane on Ward's and Blackwell's Island, the Mayor wrote a letter to the Commissioners of Charities and Correction, calling attention to the presentment and inquiring what disposition had been made of $500,000 which was appropriated in December last for the repair of old buildings and the erection of new ones, on Ward's Island and at the city's farm at Central Islip, Long Island. In reply, the Commissioners state that the new buildings on Ward's Island are progressing rapidly, that four new buildings at Central Islip will be ready for occupancy within ten days, and that all the new buildings in both locations will be completed by October 1st. They also report that the number of insane patients cared for by the city amounted on June 1st to 5,939, an increase of 489 since the first of January last, and that they will need another $500,000 to effectually relieve the overcrowding of the asylums and to provide for the natural increase of the insane.

Underpaid Assistants and Nurses. — Some two months ago Mrs. Martha Adair, a patient ninety-four years of age in the Brooklyn City Asylum for the insane at Flatbush, died under circumstances which led the coroner's jury which investigated the case to censure the asylum authorities. Later the Grand Jury indicted the superintendent Dr. Sylvester Phillips, and Ellen Reilly, the nurse who had charge of the patient, for manslaughter in the first degree on the ground of gross negligence; but they were both retained in office by the Commissioners of Charities and Correction. Now the Grand Jury for the June term has made a presentment in which it charges the superintendent with gross neglect of duty and finds that the general management of the institution by him to have been extremely faulty and unsatisfactory. It also charges the nurse, Ellen Reilly, with gross neglect of duty and incompetence, and recommends the immediate dismissal of both. It finds, furthermore, that the rates of pay for the assistant physicians at the asylum are not sufficient to obtain the necessary ability,

and recommends that the rate of compensation be fixed at from $800 to $1,500 per annum, together with the customary allowances of board and lodging. Among the other recommendations made by the Grand Jury are the following: That the pay of male nurses be from $20 to $40 a month, and of female nurses, from $20 to $30 a month; that quarters sufficient to accommodate the requisite number of nurses be erected; that such changes be made in the law as shall make the Charities Commissioners of Brooklyn solely responsible for the administration of the asylum; and that at least one of the Commissioners shall be a competent physician.

Miscellany.

IMPROVEMENTS IN THE MEDICAL DEPARTMENT OF THE ARMY.

SURGEON-GENERAL STERNBERG has inaugurated the establishment of two new features in the medical department of the army. The first is to be known as the Army Medical School, and is to consist of a course of four months' duration given in the Army Medical Museum for the benefit of newly appointed medical officers. The general order providing for the school is as follows:

By direction of the Secretary of War, upon the recommendation of the Surgeon General of the Army, an Army Medical School will be established in the city of Washington for the purpose of instructing approved candidates for admission to the Medical Corps of the Army in their duties as medical officers. The course of instruction will be for four months and will be given annually at the Army Medical Museum in Washington city, commencing on November 1st. Four professors will be elected from among the senior medical officers of the army stationed in or near the city of Washington, and as many associate professors as may be required to give practical laboratory instruction in the methods of sanitary analyses, microscopical technique, clinical microscopy, bacteriology, urine analysis, etc.

The faculty of the Army Medical School will consist of: (1) A president of the faculty, who shall be responsible for the discipline of the school, and who will deliver a course of lectures upon the duties of medical officers in war and peace (including property responsibility, examination of recruits, certificates of disability, reports, rights and privileges, customs of service, etc.). (2) A professor of military surgery (including the care and transportation of wounded). (3) A professor of military hygiene (including practical instruction in the examination of air, water, food and clothing from a sanitary point of view). (4) A professor of clinical and sanitary microscopy (including bacteriology and urinology).

A new system of assignments of medical officers is also to be established. It has been the custom to detail older surgeons for duty in large cities, where they sometimes remained for some years. Hereafter surgeons with the rank of captain will be detailed for one year; so that opportunity will be given for the officer to become familiar with the work done in hospitals and an opportunity given for attending lectures and meetings of medical societies. The details will be made in Boston, New York, Philadelphia, Baltimore, Chicago, St. Louis and San Francisco. The senior medical officers who have heretofore been stationed in several of these cities as attending surgeons will be required to perform the more responsible duties of post surgeons at the larger military posts, where, as a rule, one or more younger officers will also be stationed as assistants. The policy will not only give the younger men of the medical corps better opportunities for professional advancement, but it will give them the benefit of the experience of the seniors and of their necessary instructions and discipline which so often in the past they failed to receive.

THE CAUSE OF DEATH IN BURNS.

HOCK in the *Wiener klinische Wochenschrift*, No. 17, describes a series of experiments in 32 cases of extensive burns during life, of which number one-half finally died. A gradual increase in the density of the blood always occurred, the highest point being reached in about eight hours after the injury, and in cases which recovered returning to normal in about two days. The author concludes that this is due to the inability of the blood to retain its plasma, such a condition not accompanying any other disease. As to the primary cause, he attributes the change to the alteration which has taken place in the red blood-cells, and thinks a connection exists between these two changes as produced by overheating of the blood to 40° to 58° C. The blood thus damaged has also been shown to possess toxic properties apart from the resorption of poisonous material which takes place on the surface of the wound. These factors tend to explain the symptoms analogous to anæmia without any loss of hæmoglobin being perceptible. There is also danger in the formation of emboli, thrombi, and parenchymatous degenerations. As to treatment, the author believes that subcutaneous injections of salt are useless. Intravenous injections show very good though temporary results. The proposal to remove the exudations surgically is treated lightly, as being impracticable or unnecessary.

THE TREATMENT OF MALIGNANT TUMORS BY INOCULATIONS OF ERYSIPELAS.

DR. W. B. COLEY records a series of cases in which an attack of erysipelas coming on either accidentally or from inoculation appeared to produce an antagonistic effect to malignant disease.[1] Some of these cases occurred before the publication of Fehleisen's experiments in Germany; most of them are of recent date. Injections of pure culture of the streptococcus of erysipelas were injected into the tumor substance. Erysipelas thus artificially produced is not a dangerous condition. In many cases the malignant growth appeared to be checked, and sometimes entirely disappeared. If a recurrence showed itself, another inoculation was made, and in some cases several. Occasionally it was not possible to produce erysipelas by inoculating. The author refers to the recent experiments of Spronck, who injected the toxic products of the streptococcus of erysipelas at a point distant from the seat of the malignant disease, with great improvement in cases of sarcoma and but little effect in cases of carcinoma. The author used repeated injections of pure fluid culture, generally deeply into the tumors themselves. A reaction, with a temperature of 104° (lasting for one or two days) generally followed in cases where erysipelas was not produced. The effect

[1] American Journal of Medical Sciences, May.

upon the malignant growth is more brilliant and permanent where an attack of true erysipelas has resulted. Very rarely is an abscess formed from the injection; when there is, the author believes that a mixed infection is present. He concludes that the curative effect of erysipelas upon malignant tumors is an established fact. The action upon sarcoma is more powerful than upon carcinoma, in about the ratio of three to one. The treatment of inoperable tumors by repeated inoculations of erysipelas is both practicable and not attended with great risk. The curative action is systemic and probably due chiefly to the toxic products of the streptococcus, which products may be isolated and used without producing erysipelas. This method should not be employed indiscriminately, until further experiments have proved its limitations. Since writing the paper, the author has used the toxic products alone in injections, and finds that the advantages of so doing are great; as the necessity for isolation is avoided, and the action of the products can be so carefully regulated that the dangerous element can be entirely eliminated.

THERAPEUTIC NOTES.

UNFAVORABLE RESULTS FROM PIPERAZINE. — Rörig[1] reports that in a certain number of cases the therapeutic use of piperazine has been followed by albuminuria, and advises caution in the use of this drug in cases where the kidneys are not sound.

CREASOTE IN PHTHISIS. — Albu[2] describes the results of treatment of pulmonary tuberculosis with creasote in the Moabite Hospital, in Berlin, for the past five years. For the last year large doses, recommended by Sommerbrodt, have been given. Creasote is without influence upon the tubercle bacilli. The author believes that its use in phthisis should only be symptomatic. For most patients it is a good expectorant; sometimes it increases the appetite and acts as a tonic; while in many cases it is useless, and in a few worse than useless.

THE TREATMENT OF DIABETES MELLITUS WITH RAW PANCREAS. — Following the analogy of the treatment of myxœdema by thyroid juice, experiments have been made in several English hospitals of feeding raw pancreas to cases of diabetes. White[3] finds that most patients take the raw pancreas quite easily. The patients gained in body weight and felt better; but in most cases the amount of sugar and quantity of urine was not diminished, although in some it was.

ACTINOMYCOSIS. — A case is reported in the *Revue Medico-Chirurgicale*, No. 7, in which a case of actinomycosis was successfully treated with iodide of potash, given in doses of twenty-five grains a day.

GALLANOL.[4] — Gallanol is a white crystalline body, of a slightly bitter taste, slightly soluble in cold, freely in hot water and in alcohol, also in ether, benzine, and in chloroform. The alkalies dissolve it, yielding a brown coloration, but without sensibly decomposing it. It is prepared by boiling tannin with anilin, treated with water acidulated with hydrochloric acid, from which it crystallizes and is purified by successive recrystallizations. It does not possess irritant properties. Cazeneuve and Rollet have used this remedy in psoriasis as an ointment, in strength from three to twenty-five per cent. It apparently has value for the treatment of eczema, catarrhal lesions of the mucous membranes, especially in the blennorrhagias of the gouty.

[1] Therapeutische Monatshefte, 1893, Heft 3, S. 117.
[2] Berlin Klin. Woch., December 19, 1892.
[3] British Medical Journal, March 4th.
[4] American Journal Medical Sciences.

Correspondence.

GREEN'S OPERATION FOR ENTROPIUM.

SALEM, June 27, 1893.

MR. EDITOR: — Of all the operations that have been devised for the relief of entropium and ingrowing eyelashes, within the last twenty-five years, that of Dr. John Green, of St. Louis, because of its simplicity and its satisfactory results, is doubtless the best.

Judging by the annual reports of eye-hospitals in this country, its merits are becoming better recognized by ophthalmic surgeons. Dr. Green's method has one advantage, especially to practitioners living in remote districts; it requires no special instruments for its performance, as a knife alone is sufficient. This operation is described in the later American treatises on the eye.

Its originator recently told me that, in many cases, he no longer excises a strip of skin above the cilia, nor does he always insert sutures. An incision is made through the conjunctiva and tarsus, about two millimetres from the lid-margin, and extending the whole length of the lid, or only as far as may seem necessary. Then, on turning up the ciliary border, the lashes will hold it well everted by means of fibres of cotton applied with collodion (United States Pharmacopœia), so as to form a support, which should be kept in place for a week or less during the healing process.

A month ago, in the case of an old woman who had suffered from tricheasis for many years, I made the incision in both lids, under cocaine, and apparently without much pain. The cilia were so far gone that it did not seem possible to keep the lid-border tilted up by means of collodion alone, so deep sutures were introduced and allowed to remain for forty-eight hours, as in the original operation, though no strip of integument was removed. The result was quite satisfactory. A not inconsiderable experience in treating this affection has caused me to prefer Dr. Green's operation to others which are more difficult to perform and the results of which are, on the whole, less gratifying.

Very respectfully,

DAVID COGGIN, M.D.

METEOROLOGICAL RECORD,

For the week ending June 24, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...18	29.96	63	72	54	94	94	94	N.	E.	8	3	O.	C.	0.04
M..19	30.02	68	78	59	73	73	73	N.W.	S.W.	10	21	C.	C.	
T...20	29.90	82	94	69	61	63	62	N.W.	N.W.	17	5	C.	C.	
W.21	29.78	70	76	63	67	87	77	E.	E.	9	12	C.	O.	
T..22	29.75	58	62	55	79	100	90	E.	E.	12	20	R.	R.	0.79
F...23	29.84	56	58	54	97	100	98	N.E.	N.	13	14	R.	R.	0.67
S...24	29.98	58	62	55	94	97	96	N.E.	E.	13	8	O.	O.	0.10
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 24, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Diphtheria and croup.	Scarlet fever.
New York	1,891,306	880	382	20.90	10.45	8.80	4.40	1.76
Chicago	1,438,000	471	197	23.31	8.60	6.93	6.72	1.89
Philadelphia	1,115,562	445	181	17.02	14.03	6.90	4.66	1.84
Brooklyn	978,894	400	177	18.25	8.75	8.50	3.00	2.25
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	160	57	8.19	18.27	1.26	1.99	3.78
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	177	88	26.88	9.52	24.08	1.12	—
Cincinnati	305,000	—	—	—	—	—	—	—
Cleveland	290,000	95	38	18.90	11.55	5.25	6.30	2.10
Pittsburg	265,709	143	87	35.70	7.00	22.40	1.40	4.20
Milwaukee	250,000	71	31	21.15	5.64	4.23	8.46	4.23
Nashville	87,754	41	24	29.28	17.08	21.96	—	—
Charleston	65,165	—	—	—	—	—	—	—
Portland	40,000	8	3	12.50	—	—	12.50	—
Worcester	96,217	29	19	13.80	3.45	3.45	3.45	—
Fall River	87,411	23	9	17.40	13.15	13.05	—	4.35
Lowell	87,191	24	9	20.80	12.48	16.64	4.16	—
Cambridge	77,100	24	7	4.16	14.28	4.16	—	—
Lynn	62,656	16	2	12.50	—	—	—	6.25
Springfield	48,684	17	4	11.76	11.76	—	—	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	20	8	15.00	10.00	—	5.00	—
Holyoke	41,278	—	—	—	—	—	—	—
Salem	32,233	7	2	14.28	—	14.28	—	—
Brockton	32,140	10	3	20.00	20.00	—	—	—
Haverhill	31,396	12	4	25.00	16.66	—	—	25.00
Chelsea	30,264	—	—	—	—	—	—	—
Malden	29,394	7	1	14.28	28.56	—	—	14.28
Fitchburg	27,146	7	2	—	28.56	—	—	—
Newton	27,556	—	—	—	—	—	—	—
Taunton	26,972	7	2	14.28	—	14.28	—	—
Gloucester	26,688	4	1	—	25.00	—	—	—
Waltham	22,058	4	1	—	—	—	—	—
Quincy	19,642	6	1	16.66	33.33	—	—	—
Pittsfield	18,802	3	1	—	—	—	—	—
Everett	16,585	4	1	50.00	25.00	—	—	25.00
Northampton	16,334	—	—	—	—	—	—	—
Newburyport	14,073	4	1	—	25.00	—	—	—
Amesbury	10,920	1	0	—	—	—	—	—

Deaths reported 3,128: under five years of age 1,329; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fevers), 641, consumption 341, diarrhœal diseases 284, acute lung diseases 279, diphtheria and croup 127, scarlet fever 66, measles 42, whooping-cough 38, typhoid fever 33, cerebro-spinal meningitis 29, erysipelas 10, malarial fever 6, typhus fever 3, small-pox 3.

From measles New York 14, Pittsburgh 9, Brooklyn 8, Chicago 4, Cleveland 2, Philadelphia, New Bedford, Quincy, Marlborough and Woburn 1 each. From whooping-cough New York 12, Chicago 8, Philadelphia 6, Brooklyn 5, Pittsburgh and Nashville 2 each, Milwaukee, Lynn and Brockton 1 each. From typhoid fever Chicago 14, Philadelphia 8, New York 6, Brooklyn and Milwaukee 2 each, Worcester 1. From cerebro-spinal meningitis New York and Chicago 10 each, Brooklyn, Washington and Cleveland 2 each, Worcester, New Bedford and Brockton 1 each. From erysipelas New York and Boston 2 each, Chicago, Brooklyn, Washington, Nashville, Springfield and Everett 1 each. From typhus fever New York 3. From small-pox New York 3.

In the thirty-three greater towns of England and Wales with an estimated population of 10,322,429, for the week ending June 10th, the death-rate was 18.2. Deaths reported 3,597; acute diseases of the respiratory organs (London) 233, diarrhœa 148, measles 117, whooping-cough 66, diphtheria 57, scarlet fever 44, fever 21, small-pox (London 7, West Ham 3, Birmingham, Manchester and Halifax 2 each, Bristol, Leicester, Oldham and Bradford 1 each) 20.

The death-rates ranged from 9.7 in Nottingham to 24.7 in Liverpool; Birmingham 18.7, Bradford 17.9, Croydon 11.5, Hull 18.5, Leeds 20.1, London 18.1, Manchester 21.0, Newcastle-on-Tyne 17.7, Portsmouth 13.1, Sheffield 16.7.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 24, 1893, TO JUNE 30, 1893.

By direction of the President, CAPTAIN MARCUS E. TAYLOR, assistant surgeon, will report in person to the president of the Army Retiring Board at Fort Logan, Colorado, when required by the Board for examination by it.

FIRST-LIEUT. FRANK T. MERIWETHER, assistant surgeon, U. S. A., is relieved from duty at Madison Barracks, N. Y., and ordered to Fort Logan, Colorado, for duty.

CAPTAIN LOUIS A. LAGARDE, assistant surgeon, will, in addition to his present duties in connection with the World's Columbian Exposition, furnish the necessary medical attendance for the officers and enlisted men of the Army on duty at the Exposition grounds.

CAPTAIN WILLIAM C. SHANNON, assistant surgeon, in addition to his duties in the office of the surgeon-general, is assigned to duty as assistant to the attending surgeon in this city.

The leave of absence granted MAJOR WASHINGTON MATTHEWS, surgeon, U. S. A., is extended one month.

CAPTAIN FREEMAN V. WALKER, assistant surgeon, now on leave of absence at the Army and Navy Hospital, Hot Springs, Arkansas, will proceed at once to Fort Trumbull, Connecticut, and report in person to the commanding officer of that post for temporary duty, relieving MAJOR HENRY M. CRONKHITE, surgeon. Major Cronkhite, upon being relieved by Captain Walker, will proceed to Fort Clark, Texas, and report in person to the commanding officer for duty at that post.

FIRST-LIEUT. ALEXANDER N. STARK, assistant surgeon, is relieved from duty at Fort Monroe, Virginia, and ordered to Fort Clark, Texas, for duty, relieving CAPTAIN EDGAR A. MEARNS, assistant surgeon. Captain Mearns, upon being thus relieved, will proceed to Nogales, Arizona, and report to the senior member of the commission appointed for the location and marking of the boundary between Mexico and the United States, for duty with the commission.

AN Army Retiring Board having found MAJOR JOHN O. SKINNER, surgeon, incapacitated for active service, the extension of leave of absence on surgeon's certificate of disability, is further extended until further orders.

Leave of absence for two months, to take effect on or about July 15, 1893, is granted FIRST-LIEUT. BENJAMIN BROOKE, assistant surgeon, U. S. A.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 24, 1893.

D. M. GUITERAS, passed assistant surgeon, from Naval Hospital, Philadelphia, and to Naval Laboratory, Brooklyn, N. Y.

R. M. KENNEDY, assistant surgeon, from C. S. S. "Bache" and to examination for promotion.

GEORGE H. BARBER, passed assistant surgeon, from the U. S. S. "Miantonomoh" and to the Coast Survey.

APPOINTMENT.

DR. FRANCIS BARNES, of Cambridge, has been appointed by the Governor, Trustee of the School for Feeble-Minded, in place of DR. WILLIAM A. DUNN, resigned.

SOCIETY NOTICE.

AMERICAN NEUROLOGICAL ASSOCIATION. — At the request of the majority of the members, the Council announces that the next meeting of the Association will be held at the West End Hotel, Long Branch, N. J., on July 25th, 26th and 27th. The annual dinner will be held on the evening of the 26th.

GRAEME M. HAMMOND, *Secretary*, 58 West 45th St., N. Y.

RECENT DEATHS.

JABEZ B. LYMAN, M.D., M.M.S.S., of Salem, died June 29th, aged seventy-four years. He graduated from Amherst College in 1841, and after teaching for several years, graduated from Jefferson Medical College in 1857. He has been in Salem since 1881.

WILLIAM T. S. WARDWELL, M.D., M.M.S.S., of Roslindale, died June 24th. He was a graduate of the Harvard Medical School in 1888.

THOMAS R. DUPUIS, M.D., professor of clinical surgery and anatomy in the Medical Department of Queen's University, Kingston, Ont., died June 25th, aged sixty years.

BOOKS AND PAMPHLETS RECEIVED.

Points of Similarity Between Us and Homœopathic Physicians. By John B. Roberts, A.M., M.D. Reprint. 1893.

Catalogue of the Exhibits in the Museum of Hygiene, Medical Department of the United States Navy. Washington: Government Printing Office. 1893.

Cholera: Its Causes, Symptoms, Pathology and Treatment. By Roberts Bartholow, M.D., LL.D., Emeritus Professor of Materia Medica, General Therapeutics and Hygiene in the Jefferson Medical College of Philadelphia. Philadelphia: Lea Brothers & Co. 1893.

Lecture.

LECTURES ON THERAPEUTICS.

V. Belladonna, Etc.[1]

BY H. C. WOOD, M.D., PHILADELPHIA,
Professor of Therapeutics, University of Pennsylvania.

The subject which I have selected to study with you to-night is the mydriatics; and as time is so short I propose especially to take up belladonna as a type of these mydriatics, occupying a few moments at the end of the hour, if time suffice, with a discussion of certain other remedies of the group.

Belladonna, as you know, depends for its activity upon the presence of the alkaloid atropine. If the hundredth of a grain of atropine be taken internally the only symptoms which it produces in the average individual is a certain amount of dryness of the mouth and perhaps a little acceleration of the pulse. A sixtieth of a grain produces these symptoms to a more marked extent. A fiftieth or fortieth of a grain develops very pronounced symptoms. Now the mouth is extremely dry, the pupils are slightly dilated, the pulse is distinctly increased in its rate, and at the same time becomes hard rather than soft. After the full toxic dose of belladonna or its alkaloid the symptoms are pronounced. Intellection is affected. At first a little confusion of thought, then delirium, not stupor but delirium — a delirium in which the patient is wrapt up in his own thoughts, oblivious, indeed, unconscious of the world about him, carried away by the stream of his own ideas; a delirium in which probably the patient has hallucinations, but out of which when the delirium is passed comes no memory of these hallucinations. You may have read how the British soldiers near Jamestown in Virginia partook of the stramonium and how they became delirious, and stripped naked; in the words of the old chronicler, they "played a merry comedie." At the same time the pupil is widely dilated; respiration is usually but not always somewhat hurried; the pulse is always rapid (110, 120, 130, 140 a minute), small, corded. The bodily temperature now rises, and there comes out an efflorescence resembling the rash of scarlet fever, not so distinctly punctated as the true scarlet fever rash, a more erythematous blush; and so the hours pass by in delirium until the second stage is developed, when the forces begin to fail. The pulse continues its rapid beat, but the hardness and power is gone out of it. The bodily temperature falls. The dry skin becomes covered with sweat. The pupils keep dilated. The respiration maintains its rate, but grows more shallow. Convulsions appear or the patient sinks into quiet stupor and at last through collapse and coma, the patient passes gradually into death, all functions being obliterated with such extreme equability and so gradually that you scarcely know whether the man has died from failure of the circulation or of the respiration.

It might seem here natural, in accordance with the course I have pursued in past lectures, to say a word in regard to the diagnosis in doubtful cases of belladonna-poisoning. There is one very simple and very sure method of diagnosing poisoning by one of these mydriatics. It consists simply in withdrawing some of the patient's urine, and dropping a little of it in the eye of a brother or of a sister or of the family cat. Under these circumstances if the case be one of mydriatic poisoning there will be dilatation of the pupil. I shall pass by for the present, till I see how my time holds out, the discussion of the diagnosis between poisoning with this mydriatic and with other mydriatics and proceed immediately to the consideration of the physiological action of the remedy.

We find that belladonna produces on the whole very similar symptoms in the lower animals to those which it causes in man, with certain exceptions, however; and I note these exceptions because they bring us face to face with laws of physiological interpretation of which, unless my memory fails me, I have not spoken to you. Some of the lower animals are entirely insusceptible to the action of belladonna. The ordinary goat, so dear to the inhabitants of the outskirts of some of our great cities, rolls the stramonium cud under his tongue with especial delight; and though the infants receiving his milk may feel the effect of the stramonium, the goat himself does not. Now I believe this lack of susceptibility to be the result of inherited narcotic habit. We know perfectly well that the ordinary human individual can become accustomed to the use of a narcotic, and I believe myself that the goat of to-day loves the stramonium because the goat of yesterday was nurtured upon stramonium. It is a very curious fact that the Virginia deer eats tobacco without feeling any of its effects. I have recently seen it stated in an East India journal that certain races of monkeys will feed on the bean of nux vomica and receive no poisonous effect. It does seem as though it were possible for animals to have an acquired drug habit which could pass from individual to the race. A second exception is in regard to dilatation of the pupil, and this especially in regard to birds. Some years since I noted it as an extraordinary fact that the irides of the bird are not affected by atropine or belladonna. I came to the conclusion that there must be an anatomical difference between the iris of the bird and mammal; and I ventured the prediction that some time it would be found that the muscle fibres of the bird's iris were striated, because we know that atropia does not affect striated fibres. Some years after I had published this conjecture Bernstein and Dogiel by actual anatomical examination demonstrated that the fibres in the irides of birds are striated. They also showed that the fibres of the œsophagus of the rabbit are striated and are not affected by atropine. The cat has certain parts of its œsophagus with striated muscular fibres, other parts with non-striated fibres, and where the striated fibres come belladonna has no effect; where the non-striated fibres are belladonna paralyzes the œsophagus. Passing by these thoughts without more detail, let us study first the action of this drug upon the circulation.

Taking up the frog's heart, we find that there has been a good deal of contradiction among investigators. Some have asserted that the frog's heart has its activity increased by atropine; others that it is paralyzed by atropine. When we come to look into this discord, certain facts come out plainly. In the first place, it is absolutely certain that after toxic doses of atropine the heart is arrested in diastole, and that the heart is at this time not susceptible to the action of galvanic or other stimulant. Now, unless a drug acts through the pneumogastric nerve, it is, I think, an unquestionable fact that when it arrests the heart in diastole it acts as a paralyzant of the heart, and we have positive evidence of this fact in regard to atropine. A large dose

[1] Delivered before the Harvard Medical School Association, May 18, 1893.

of atropine brought in contact with the frog's heart paralyzes it at once, and we learn as a settled positive fact that an enormous dose of atropine paralyzes the heart muscle. The question concerning which there is doubt is as to the action of the small dose upon the frog's heart. We have the experiments of Bowditch and Luciani, which seem to indicate that the small dose stimulates the heart of the frog; also those of Ransom made upon the octopus, of Furbringer made upon the apex of the frog's heart, in which it was found a little of the atropine would start movement in the apex after it had ceased to beat. Then we have the experiments of Beyer upon the heart of the terrapin — all going to show that atropine in minute amount does stimulate the heart; and I think we must conclude that this alkaloid has some stimulant action upon the heart muscle, but that in man this stimulant influence is subordinate to action upon other parts of the system, so that we cannot use belladonna or atropine as a primary cardiac stimulant. One of the most marked phenomena of poisoning by atropine is the extreme rapidity of the pulse. This rapidity of the pulse is probably in part due to the action I have spoken of upon the heart muscle, but it is much more largely due to the influence of the drug upon the pneumogastric nerve. Bezold and Bloebaum were, I think, the first to point out that if you cut the pneumogastric nerve in the atropinized animal there is no increase in the rate of the heart. These investigators also performed an experiment which has been repeated many times since, namely, poisoned the animal, exposed the pneumogastric nerve, galvanized the nerve, and found that it had no control whatever over the heart. We know, therefore, that atropine is a paralyzant of the peripheral pneumogastric, and that the great rapidity of the heart's action under its influence is chiefly the outcome of pneumogastric paralysis; and we see now why it is that belladonna enormously increases the pulse-rate in the hound and increases it very little in the ordinary domestic rabbit. The ordinary domestic rabbit has a very feeble pneumogastric. Its pneumogastric has lost its functional activity through the years of confinement. The hound keeps down the action of the heart in the chase by its pneumogastric nerve, and so when we paralyze the pneumogastric nerve with atropine we get an enormous increase in the rate of the heart. Paralyze the pneumogastric of the rabbit, and we get only a feeble effect. I found when you took ordinary city dogs you increase the rate of the heart, but do not increase it nearly as much as you do the hound's heart. It is simply a question of the activity of the pneumogastric nerve in the life of the animal. The slight increase in the activity or power of the heart and the great increase in the rapidity of the heart in a measure account for the rise of the arterial pressure which takes place under the influence of this drug. We will find that the action of this drug upon the circulation gives us a curve something like this [drawing on the board]: a very rapid pulse, great rise of pressure and then, if the dose have been large enough, a fall. I have found, however, that if you cut the spinal cord high up and thus separate nearly the whole vaso-motor territory from the upper dominant vaso centre, that atropine will not increase the arterial pressure to any marked extent, although there is an increase of the pulse-rate. This proves that belladonna has an enormous influence upon the vaso-motor centres in the medulla, and we get here one great action of belladonna, namely, that it is a very powerful centric vaso-motor stimulant. Finally the blood-pressure falls. This final fall is the result of paralysis of the vessel walls. When in sufficient amount, atropine paralyzes all non-striated muscle fibres, and hence after atropine poisoning there is always retention of urine, because the bladder is paralyzed by the atropine in the urine lying in the viscus. The secondary fall, then, is partly the outcome of increasing cardiac weakness and partly the outcome of paralysis of the peripheral vessels, probably, also, the vaso-motor centre feels waning power following excessive primary stimulation.

I have spoken to you, I think, sufficiently at the previous lecture in regard to the action of atropine upon the respiration; I content myself now with simply saying that it acts as a powerful respiratory stimulant. Passing by the nervous system for a moment, for reasons you will appreciate later, let me call your attention to the action of this drug upon peristalsis. Under the influence of belladonna there is at first an increase in the activity of peristalsis, and then a decrease, and finally a paralysis of the intestines. The first increase in the rapidity or extent and power of peristalsis is undoubtedly connected with the action of the drug upon the splanchnic nerve. It seems to follow from the experiments of Pflüger that the splanchnic nerves are the inhibitory nerves of the intestinal tract, and it has been proved by Keuchel that galvanization of a splanchnic nerve in an atropinized animal does not affect peristalsis; in other words, the splanchnic nerves are paralyzed. The nerves of inhibition in the intestines are paralyzed by this drug; as the nerves of inhibition of the heart are paralyzed, and then as the heart muscle is paralyzed and as the bladder muscle is paralyzed, so finally are the intestinal coats paralyzed.

Now, in regard to the action of the drug upon the pupils. The action of this drug upon the pupil is that of a mydriatic. The first point I want to make is that when you put atropine in the eye of the man or animal and dilate the pupil you get an action which is local and not centric. It has been proved abundantly that you can take the humors out of an eye paralyzed with atropine and put them in a second eye and get a second dilatation; and we know, therefore, that this drug atropine dilates the pupil when it is put in the eye by acting locally upon the peripheral nerves or fibres in the eye-ball itself. Of course, we may get dilatation of the pupil by paralysis of the oculo-motor nerve or dilatation of the pupil by stimulation of the antagonist to the oculo-motor, the so-called sympathetic fibres going up with the carotid. It has been proven by several investigators that the oculo-motor nerve is paralyzed by atropine. Galvanize the oculo-motor nerve in the atropinized animal, and you get no result. We have, therefore, dilatation from oculo-motor paralysis; but I think if there be any oculist in the room he will bear me out in asserting that the dilatation of the pupil by this drug is more active than passive, that you can tear and rend exudations by it if these exudations be not too firm. It would seem, therefore, that not only does atropine paralyze the oculo-motor nerve, but that it also stimulates the antagonist of the oculo-motor nerve; this belief is further strengthened by the fact that you can get much wider dilatation from the use of atropine than you get in any ordinary oculo-motor paralysis; moreover, I have put atropine into the eye which was in the condition of oculo-motor paralysis,

and seen the drug still further dilate the pupil. I believe, therefore, that the local action of atropine in the eye is twofold, — oculo-motor paralysis, sympathetic irritation. The next point I want to make is that the action of atropine is the same, whether it be given through the circulation or whether it be put in the eye. It is a local action after all. This seems so natural as scarcely to require proving. I cannot go over the experimental evidence to-day. Suffice it to say, that a man came under my care who had been so smashed in a railroad accident that the whole temporal bone had been driven in and all the nerves going to the eye were cut. Under these circumstances I found that giving that man atropine in the leg dilated both pupils, the pupil on the uninjured side, and the pupil which was separated from the centres; and it seems to me, therefore, demonstrated that the action of atropine is a peripheral action even when the atropine is given hypodermically. You can readily see why a study of the pupil in opium-poisoning is no guide to the use of atropine. The opium contracts the pupil centrically; the atropine dilates it peripherally. There is a seeming, but not a real, antagonism in the action of the two drugs; and, therefore, in the case of narcotic poisoning when you are using atropine you are not to select the pupil as a guide to the amount of atropine which may be used. I have seen the pupil widely dilated, and atropine fail to influence the respiratory function. You use the atropine for its effect upon the respiration, and it is scarcely worth while even to look at the pupil.

And now in regard to the action of atropine upon the nervous system. In the first place the symptoms which it develops show at once that this drug has a very strong sympathy or influence upon the cerebral cortex. It is a delirifacient, but it is not a sleep-producer in the proper sense of the term. Albertoni made a series of experiments to determine whether it has relation with the motor zone of the cortex. He exposed the cortex in dogs poisoned with atropine, and found that the ordinary responses to galvanization of the cortical centres came; and we learn that this drug affects the centres of intellection and conscious life, but has little or no influence upon those cerebral centres which are connected with motion.

When we come lower down in the nervous system, we find ourselves in the presence of difficult problems. Many years ago Botkin found that in a frog poisoned with this drug after a certain time there is a general paralysis or muscular relaxation,* that if he tied the artery to a leg before giving the poison so that there could be no access to the nerves, that leg retained power long after the other legs were paralyzed. This, of course, could only be explained by the theory that the action of the drug in producing paralysis is peripheral upon muscle or nerve. So Botkin opened the frog's leg and tested the condition of the nerve, and found when he put the poles of the battery upon the muscle it contracted, but when he brought the poles in contact with the nerve there was little or no contraction; and he reached the conclusion, which has since been abundantly confirmed by others, that atropine is a powerful depressant to the motor nerves. It has been proven by the experiments of Meunot and of Bezold and Bloebaum, that the drug also has slight relations with the sensory nerves. Perhaps the most conclusive of these experiments were made by exposing the nerve, and putting on it a weak solution of atropine. It was found under these circumstances that very soon irritation of the nerve above the point of contact failed to produce response in the tributary muscles. For some time after this impulses would reach up toward the centre; but by and by the impulse would fail to reach the centre showing that the drug had at last blocked the afferent pathway and that it has an influence upon the sensory or afferent fibres, although it acts upon those fibres much less powerfully than it does upon the motor fibres. This was supposed to be the end of the problem, until one day Professor Frazer, of Edinburgh, found that some atropinized frogs he had put aside the day before in his laboratory as dead were in a condition of excessive life, every one in tetanus. That led to research, in which it was proven that there is a certain dose of atropine which may be given to the frog which produces complete apparent death, but in which, when the animal is left for a little time, he comes up out of this condition and passes into a state of violent tetanus. Frazer, thinking over the explanation of this, came to this conclusion, that the drug is a violent tetanic poison, acting as does strychnine upon the motor cord, but that so long as there is paralysis of the motor nerve-trunks this condition of stimulation of the nerve centres was masked by the condition of the nerve. No impulse could get out from the surging spinal sea because the channel-ways were blocked, and so the sea surged on until the ways began to be open, and then the raging waters got out and made the violent convulsions. This was a very reasonable theory: Professor Frazer supported it by various experiments bearing on it; so that it was believed to be the correct explanation until Ringer and Murrell challenged it. They found in the first place that there were certain frogs in which the paralysis never became complete, frogs in which the channel-ways remained open all the time, though there was great weakness and yet strychnine-like convulsions did not come until late. They argued if the chocked-up channelways had sufficient permeability to allow a normal impulse and movement to come through, there was sufficient permeability to allow tetanic impulses to come through. So that the fact that there was no tetanus proved that at that time there was no spinal excitement. They further found that if they tied an artery so as to shut off from the poison access to the nerve of a leg and poisoned the frog, that that leg went through exactly the same stages as did this whose nerves had not been protected from the drug. They proved in this way that masking of spinal irritation by paralyses of the nerves cannot be the explanation, of the phenomenon but that both the paralysis and the convulsion must be centric in their origin. Finally, they proved by watching certain frogs that sometimes there is a stage in which the dead frog begins to creep, but is not tetanized, only to become tetanized a little later; therefore, Ringer and Murrell said both paralysis and convulsion must be spinal and must come from one action on the spinal cord, and now I am going to ask you, in order that you may understand this matter, to leave the whole subject of belladonna for a few moments, working our way back to it.

Many years ago a very curious phenomenon was noticed in regard to the action of quinine. It was found that under the influence of quinine there is a condition in which there is complete suspension of reflex activity in the frog, so that when the impulse is sent up an afferent nerve it produces no reactions.

Nothing extraordinary in that; but the extraordinary discovery which was then made was, that if the spinal cord be divided reflex action comes back at once. Now, I know no other possible way of explaining this phenomenon except by the supposition — which to me is more than a supposition, is an established theory — that there is in the brain an inhibitory centre which dominates the motor cord, and that when you give quinine you so stimulate this inhibitory centre that it absolutely arrests action in the spinal cord, and that when you cut the spinal cord you remove the influence of this inhibition and allow the normal reflexes to return. Several other theories have been invented to explain this phenomenon: none of them are proved; all of them are complicated; and I think all are accompanied by fatal defects. I believe, therefore, that there is a centre high up in the dominant region above the spinal cord, and that quinine stops reflex activity by stimulating that centre. Now, let us return to belladonna. The theory of Ringer and Murrell is simply that belladonna paralyzes both sides or both functions of the spinal cord. Suppose, for the purpose of illustration [drawing on the board], we take this yellow line to represent the inhibitory function, the white line the motor function. He says both these lines are paralyzed. You have complete relaxation; but the action of the drug is more permanent on the yellow line than on the white, on the function of depression or inhibition than on the function of motion, and so there comes a time in the restoration of the frog when the function of motion has been restored to the spinal cord, but the function of inhibition has been, as it were, dissected out or removed. Ordinarily, when the impulse comes up to the spinal cord from the periphery, strikes a spinal cell — which we may metaphorically speak of as a bell — ordinarily, then, the impulse has a tendency to run from spinal cell to spinal cell, all through the chime of bells in the spinal cord; but it meets the restraining influence of inhibition and is so confined that only the bell rings that is needed. Atropine takes off the restraining hand of inhibition, and the impulse plays at will up and down the spinal cord ringing the whole chime; and so wild tetanic movements are developed because there is no hand to check them. I believe, therefore, that the theory of Ringer and Murrell is correct.

Again let us travel a little more afield, if you will, to certain experiments of my own during the last few months. You know the problem of chorea in the child; and the problem of the choreic movement has been one concerning which there has been a great deal of discussion and very little light. Some years since I divided the spinal cord high up in a choreic dog below the point of section and found that the movements still went on, and thus demonstrated that the choreic movement may, at least, arise in the spinal cord. I do not mean to say that every choreic movement arises in the spinal cord, but that the choreic movement may arise in the spinal cord. Without occupying more of your time, I am well assured that whilst there may be cortical choreic movements the ordinary choreic movements of childhood are largely spinal. I believe the whole motor tract is affected in the child, but that the motor cells or the spinal cord are especially connected with the choreic movement. As I was thinking over this matter, it occurred to me that when the child attempts to seize the tumbler of water and the hand goes here and there, the reason is that the motor impulse is not arrested at the proper time. We have had a great deal of discussion in our physiological books and in our works on nervous diseases about the motor impulse going to the muscle. Probably, few of us have thought that the arrest of the motor impulse at the right time is as important a part of the physiological process as the original formation of the movement. Why does the muscle in one case go to a certain point and suddenly stop? Because the inhibitory force comes down and shuts off the impulse, so that according to my belief, the inhibitory force is as active — counts for as much — as the originating impulse. The reason the child with St. Vitus dance cannot stop the movement is because its inhibition is weak. It cannot get the arrest quick enough; and the foundation of the choreic movement is, according to this thinking of mine, weakened inhibition. Then I set my wits to work to see how I should test the matter, and I thought of this action of quinine and belladonna. I got a choreic dog, and found that a little quinine thrown into a vein would stop the choreic movement. It stimulated the weakened function of inhibition, and put a hand on the choreic movement. I took another dog and injected atropine into its vein and got this result: inside of a minute the choreic movements were quadrupled by the action of belladonna, and I therefore was emboldened to put it forth as the theory that paralysis or weakness of inhibition is the basis of the choreic movement. Now, that naturally led me, of course, to the study of the action of quinine upon chorea. I have not had enough cases to speak positively; but, certainly, my results indicate that we ought to make further trials of quinine in this respect. My studies have been in all points first upon dogs, second upon human beings. The surgeons at the Veterinary Hospital of the University of Pennsylvania, have told me that they had never cured a case of chorea in the dog in the hospital. We have had seven cases, and five of them cured by quinine. In human chorea, I have seen cure in two very bad cases, one of four years' standing. Each of these cases was so bad that the child could not feed itself. The action of quinine was immediate in checking the movements; and one of the cases was finally, without any other medicine except quinine, cod-liver oil and tonics, absolutely cured. The case of two years' standing went out after six or eight weeks with simply little evidence of choreic movement in one hand. Now, I have no doubt that in those cases quinine did have some action. We have had nine cases in dispensary practice, and six of them cured by quinine in from one to two weeks. The action of quinine seemed to be somewhat temporary unless cod-liver oil and tonics be added. In other words, other remedies such as iron and cod-liver oil often have to be used to assist in permanently removing the choreic tendency. Another thing that astonished me was the amount of quinine these children can take without effect. To the child eight years old, who had had chorea two years, we gave seventeen to twenty-four grains a day for five weeks, and we never had one symptom of quinine action. There was no ringing in the ears, no deafness, no apparent influence at all from the quinine, except the child getting better. I think, therefore, that matters have gone far enough to indicate that we have in quinine a remedy that ought to be tried in chorea, probably acting upon the spinal cord in the manner in which I have spoken.

And now, gentlemen, let us return to the immediate

subject of the present lecture, belladonna; and let me give a little summary of the action of atropine. We know, in the first place, that it is a peculiar stimulant of the intellectual cerebral cortex, finally paralyzing the cortex; that it is a respiratory stimulant; that it has certain actions upon the spinal cord; that it paralyzes inhibition in the spinal cord and inhibition of the heart and inhibition in the splanchnic nerves, that is, in the intestines; that it acts as a powerful centric vaso-motor stimulant; that in some way it raises the bodily temperature; and that it produces an efflorescence of the skin. The similarity of the action of this drug to scarlet fever led, on the homeopathic principle, to its use in scarlet fever, especially as a prophylactic. It is hardly necessary to say there is little or no true or close resemblance between the action of the scarlet-fever poison and that of atropine. Many years ago the Professor of the Theory and Practice of Medicine in Jefferson College taught that belladonna is a powerful prophylactic in scarlet fever. Prof. George B. Wood, in the University, taught the opposite. There was a certain boarding-house in which both sets of students boarded. Scarlet fever broke out. Every Jefferson student took belladonna, and every University student let it alone. Many of the Jefferson students took scarlet fever, and not one of the University students got it. Reasoning as many people reason on this circumstance, we would conclude that abstinence from belladonna is a prophylactic in scarlet fever.

Now, gentlemen, we use this drug for various purposes, and all our uses are in strict relation with its physiological action. We employ it to relax spasm, and long before the physiologist worked out the problem, the clinician learned that it best relaxed spasm when he used it locally. In asthma, we give it in cigarettes. If you have a wry neck from sterno-cleido-mastoid spasm, inject the atropine into the belly of the muscle. If you have whooping-cough, give it by atomizer. Wherever you want to relax spasm, you apply it locally, and the reason is not far to seek. It acts not upon the centres, but upon the nerve, and when you bring the belladonna in contact with the nerve at the point of irritation, you relax your spasm, and hence we learn this, that this drug is not a suitable drug in those cases in which the spasm is the outcome of a general stimulation of motor centres. Formerly, belladonna was used as a hypnotic. I was taught when a student that it ranked almost with opium. Knowledge of its physiological action is borne out by the later clinical experience that this drug has no influence as a hypnotic save only in certain cases in which it puts aside spasm or pain or some disturbing influence. Then the drug was used very largely for the relief of pain. In accordance with our knowledge of its physiological action, it is of no value in relieving pain save only by relieving the spasm which produces the pain, except in certain cases as in cancers or in painful ulcers in which you can put it on the spot and affect the peripheral sensory nerves, then you get the action referred to earlier in the lecture.

A use of the drug which is perhaps not altogether appreciated by the profession is for its influence upon the blood-vessels. I want to express my conviction of the value of belladonna in the treatment of sore throats, when given in the dose of five to ten drops of the tincture every two, three or four hours, according to the susceptibility of the case. Whether it acts by impressing the blood-vessels locally or in some specific manner upon the mucous membrane, I do not know. The great value of it for the purpose of impressing the blood-vessels is seen in shock conditions. In the condition which we commonly call shock we have a state which is allied to the syncopal state, but is not the same thing. In the first place, you can kill an animal by a single blow through shock. It has been demonstrated that this occurs through irritation of the pneumogastric nerve. If you hit a man upon the stomach and he falls dead, he falls dead with heart in diastole relaxed from excessive inhibition. If you cut the par vagum of the animal, it is impossible to produce this death by shock. After the first pneumogastric stimulation of a sudden shock, often, no doubt, without this primary state, the one centric feature of shock, you have vaso-motor paralysis. The collapse and fall of temperature are but the garments that clothe over and often conceal the real centric phenomenon of the condition, namely, vaso-motor paralysis. The temperature falls, for reasons I have already explained. When I was a student in the hospitals, we used to have cases of shock in abundance, and we would pour alcohol into them and wonder we got no more effect. It seemed like pouring alcohol into a rat-hole. Alcohol is probably of no value whatever in shock; indeed, I am perfectly sure that a large dose of alcohol in shock puts one nail in the coffin of the patient, and if you want your patients to come out of shock you will be very careful in giving them alcohol. Alcohol stimulates the heart, but it paralyzes rather than stimulates the blood-vessels. It is under these circumstances that atropine becomes a remedy of the great value. Give digitalis, if you please; it helps. Give strychnine; it helps. But the one remedy which we have, which will summon any power there may be in the vaso-motor centre into immediate action, is atropine.

And now may I say to the medical men that the treatment of shock is not the prerogative of the surgeon as some believe? I believe patients sometimes die because we are not quick enough in understanding that this condition is frequently developed as a result of disease and not of injury. Not long ago I was called in consultation in a case of the puerperal variety of confusional insanity. I met the doctor, one of our best practitioners. He said to the husband: "Your wife is a good deal better this morning." As soon as my eye lit on the face, I knew she was dying from shock. The temperature was 95°, and before we could do anything 93°. In confusional insanity, whether after childbirth or surgical operations, or in the form known as delirium tremens, in all this group of insanity there is lack of nerve power as the centre of the condition; and shock or a condition allied to shock is apt to come on suddenly, and you know its presence by this fall of the bodily temperature if you cannot recognize it by your eye. In pneumonias in children, shock is a very common condition. You see it sometimes after severe rheumatism or any severe disease. When I used to see children's diseases more than at present, I noted shock at the time of the crisis or a little later, in a large proportion of severe cases of pneumonia; and under those circumstances I always used to tell the parents to get belladonna or atropine and keep it in the house so that there need be no loss of time in an emergency. When the child's temperature suddenly falls much below the normal, the sweat pours out, and the pulse weakens almost to a thread during the

third stage of pneumonia, you know you have vaso-motor paralysis; and under these conditions belladonna is the hand that will lift the child up out of the grave.

My hour is more than up and so I must leave the subject at this point. A word before we separate. It is one of the results of the remorseless march of time that that which is to be will be, and that which will be will have been; and now our time has gone, and that which came to me so unexpectedly has passed. My lectures before you are over. I only want to say that among the memories which will seem to me most precious, as crowning a life of labor, will be the picture of your intelligent faces earnestly interested in the little that I have had to say. I thank you from the bottom of my heart for your courtesy and from this time forth shall always claim with you that I have had some little part in the greatness of the Harvard Medical School.

Original Articles.

IS GERMAN MEASLES (ROTHELN OR RUBELLA) AN INDEPENDENT DISEASE?[1]

BY CHARLES P. PUTNAM, M.D.

MEASLES and scarlet fever have been distinguished from each other only in modern times. West retained even in his edition of 1873, the following: "These two diseases present many points of resemblance; so many, indeed, that they were long supposed to be but varieties of the same malady, and the essential differences between them were not recognized until within the last eighty years.[2] It is, however, on many accounts, important to distinguish between them; for not only are they not attended by the same degree of danger, but this danger arising from dissimilar causes, the treatment they require is, in many respects, different."

Now a great many physicians believe that another eruptive disease ought to be distinguished from both measles and scarlet fever, and the distinction is important for the same reasons.

A suggestive sentence in Evanson and Maunsell, edition of 1838, gives the first intimation I have seen of any division of measles. "An eruption precisely similar in appearance to that of measles is occasionally seen, especially in young infants, and runs through a regular course without catarrhal symptoms. This has been denominated rubeola sine catarrho. It requires no particular treatment, being merely a local affection, but it is generally believed by authors that it does not, like true measles, offer an immunity from future attacks."

German measles, rötheln or rubella, if there is such a disease, is not generally severe in character, but there are reasons, not only of theoretical, but of practical importance, why its differentiation should not be neglected. When we are called to see a child with an eruption, the question at once arises: Is this disease likely to be severe, or is it likely to lead to severe disease in others, and, on the other hand, from what disease will it be likely to give future protection? If we can distinguish between a regular measles and rötheln or German measles, we can answer this question much more satisfactorily. It has often happened to me to be obliged to answer the question in private families, and I will relate an instance which occurred in a large institution for children.

The Superintendent asked what should be done in view of an eruptive disease which had broken out. One child taken sick three or four days earlier had been sent to the City Hospital by another physician, as having measles, and one or two new cases had appeared.[3]

It was a matter of especial importance to the Home at that moment, for a few days later, the anniversary meeting was to be held, and many children and adults were to visit the Home. Besides, a few days later, a large number of the children were to be sent out West to be given in adoption, and both of these plans must be entirely broken up if measles had appeared. The differential diagnosis of the disease was also important on account of the individual children who were to take the disease. Would there not be a risk in sending them, as they were successively attacked, to a hospital where they would be exposed to undoubted measles?

I thought the disease was clearly not measles, but asked one day more before deciding positively. Next morning I advised them to go on with the festival and with the plans for sending the children out West on the theory that the disease was rötheln. Between May 17th and July 26th there were thirty-two cases closely resembling each other. None were sick enough to be in bed. No case was followed by any serious sequelæ. In his zeal to keep children of the same family together, the Superintendent sent off several to the West in the midst of their eruption and I believe that some broke out with the disease and went through with it while on the journey. If I had decided that the disease was measles the work of the Home would have been seriously impeded for a long time.

Each child was sent to the isolating-room as soon as any eruption was noticed, which usually happened at dressing-time or sometimes at meal-time, so that they had from four to twelve hours during which they had not been observed.

Generally the eruption was found over the whole body and almost invariably over the whole trunk. In many instances it grew thicker after admission and this was especially marked on the lower extremities. It generally lasted three or four days. Though in some cases it faded quite rapidly at first, the fading at the end was so gradual that it was hard to say exactly when the eruption disappeared and the skin became quite normal. In two or three cases it seemed almost gone, then freshened up a little and lasted a day or two more. In one case the skin did not seem quite normal until after six, and in one, not till after ten or eleven days, but in these long cases the rash did not continue bright and gave the impression that the skin had acquired a hyperæmic habit.

In each case the post-auricular, and in general, also the cervical glands were enlarged and tender. There

[1] Read before the Boston Society for Medical Improvement, March 27, 1893.

Rötheln was the name originally used in Germany, and because it was first described in that country, it was called German measles in English. Rubella has been suggested and used as the English name, and it is perhaps the best that has been used, but in this paper I adhere to the original name to avoid any possibility of confusion.

[2] Dating evidently from his first edition.

[3] I am informed that the child that was sent to the City Hospital went on May 15 and returned May 25, 1892. The diagnosis was rötheln. Eruption was gone on the 17th. She appeared perfectly well at the end of five days, stayed in the hospital, however, five days longer; discharged well.

was always more or less eruption on the soft palate and fauces, though often very faint. A little cough was noticed in some cases, though not severe in any. Headache was not infrequent, but never severe enough to give any impression of suffering. Moderate malaise was not uncommon. The temperature curves, with certain exceptions, did not go above 101°, and often not above 100°, the morning temperature being a degree or a half a degree lower; but among the thirty-two charts there were a few where it would appear that some other influence had come in, either at the beginning of the disease or at the middle of it, and there was then an exceptional temperature of 104°, 103° or 102°, for a short time. During this time there was no case of measles with the ordinary symptoms, nor any other eruptive disease.[4]

The great majority of writers believe rötheln to be an independent disease, never giving rise to any other disease, nor being derived from any other. It is mainly because a few years ago, in another society, I unexpectedly found myself the only advocate for its independence, that I thought it would be interesting to bring the subject up again. Those who do not recognize rötheln as an independent disease and consider it a mild form of measles, maintain (1) that repeated attacks of measles may occur; (2) that some epidemics are light and some are severe; (3) that in any one epidemic there is great variety in the severity of the attacks, some being so light as hardly to be recognized; and (4) that if the diseases are not identical, they see no diagnostic points by which they can be distinguished.

There is a general impression that measles often attack an individual more than once; but I think this impression is much stronger than is justified by the facts. Many writers speak of one attack of the measles giving immunity from future attacks, and do not even mention that repeated attacks sometimes occur. Those who mention the possibility of repeated attacks almost always say that they are rare.

Baginsky says they seldom occur, although he has observed them a small number of times (*einige Male*), as have also Hennig, Kassovitz, Prunac and others. Hennoch says that the re-occurrence of measles is much over-estimated, and that it is exceptional. Thomas says "extraordinarily unusual." Strümpell and Gerrhardt say that it is of the greatest infrequency, and many others use similar expressions.

My own experience has been the same. Although I have several times seen patients who said they and their friends had had it twice or three times, I have never been so fortunate as to see any one go through two attacks. On the other hand, I am not in the least disposed to deny that repeated attacks have occurred.

Of course those who believe that measles and rötheln are the same disease, have many more cases of repeated measles than those who differentiate between the two. They claim that the so-called rötheln is but a weakened measles, just as varioloid is a weakened variola. If there were but one disease, should we not find attacks varying in all degrees between the weak and the strong types, so that in some cases it would be difficult to say which is which, and yet this is not the case; for unquestionably whether we believe that these attacks must be divided into two diseases, measles and rötheln, or that they are the same disease, now in a severe type, now in a light type, it must be admitted that we can always distinguish this particular light type from the severe, if opportunity is given for a reasonably lengthy observation.

It is certainly true of all epidemics of the contagious diseases that some cases are severe and some cases are light, but this statement, as applied, for instance, to scarlatina, means that with similar symptoms the degree of severity varies very much. Epidemics in measles also vary greatly in severity, but an attack of measles may be exceedingly light and yet not present the picture given by this mooted disease. To believe in its identity, we must say there are (1) light cases of measles which resemble the severe cases closely, except that they are light, and that these light and severe cases run into each other by imperceptible degrees; but (2) that there is also a set of light cases, which differ from the severe cases in so far as they are light, but also in a variety of other ways, and do not run into the severe cases by imperceptible degrees.

The differentists do not necessarily claim to know that rötheln is caused by a different germ (for they do not know what causes either disease), but only that they can distinguish the collection of symptoms to which they give this name, from the collection of symptoms to which they confine the name of measles; and that they can tell beforehand whether the former or latter collection of symptoms will occur, as the result of contagion in another person. The identicists claim that there is no such collection of symptoms by which they can characterize a disease separate from the measles; nor do they confess to be able to tell, if these peculiar symptoms occur, whether they will, by contagion, give rise to the same mild symptoms or to the most severe symptoms of measles.

Must we then adopt this latter view and admit that no differential diagnosis can be made, either because there is but one disease before us, or because, there being perhaps two diseases, there are no diagnostic points by which they can be distinguished? Certainly those of us who have prophesied that one case would be followed by measles of unknown severity and another by an illness sure to be mild, and who have found their prophesies always fulfilled, will not be willing to accept this view.

It has been claimed that the variations and discrepances in the histories of rötheln make it impossible to make a diagnosis, and that the variations in the course of cases of measles make it possible to include all the supposed cases of rötheln under the head of measles. But the variations of rötheln seem to me to be of a non-essential kind, while the similarities are essential. Both rötheln and measles are contagious, but I have not had reason to suspect of any one case of either, that it had come from the other disease. The incubation of rötheln is apparently variable, and the limits are greater than in the case of measles. In most cases (not in all) no prodromal stage has been observed. The first symptom is usually an eruption of small, pinkish spots, which are noticed unexpectedly when a patient happens to come under more close observation than usual, as when he is bathed, when he appears at a meal, etc. Sometimes in an unusually severe case, there is a complaint of discomfort of some slight kind for twenty-four hours or possibly more, and occasionally in looking back, a patient will say that he has had some discomforts for a day before, or has noticed pain and swelling of cervical and post-auricular glands. An attack of the measles may, of course, be

[4] The thirty-two temperature charts were shown at the meeting.

very light and the symptoms may be very mild, but the prodromic symptoms almost always bear a very large proportion to the other parts of the disease. A physician is not called to a case of measles to find a large part of the body covered thickly with eruption and yet learn that this was the first notice of its existence that the disease had given.

The difference between the two diseases as regards the spread of the eruption is very well marked. You are called to a case of rötheln and told that the patient has been examined carefully a short time before and that the eruption was only on the face. But you ask to have the clothing removed and behold it has already covered nearly the whole body. With the measles, the eruption comes on tentatively in the form of isolated papules, which enlarge and coalesce and slowly go down over the body in the course of two or three days.

The color of the eruption of rötheln is rose, that of the eruption of measles is more purplish. In rötheln the papules are smaller and do not have the maculate appearance. Red patches sometimes result, but they seem rather to arise from a sympathetic hyperæmia than from coalescing of separate papules, as in case of measles. In the duration of the eruption, there is also more variation than in measles, for while three days is the usual duration, it sometimes remains visible for a longer time, but the appearance of these cases suggests that the blood-vessels have lost their true size and remain dilated rather than that the eruption is still there.

Rötheln, apparently, also has its light and severe epidemics, for some writers report cases having more severe symptoms and more severe sequelæ than others.

Stone and Davis tell of an epidemic that occurred in an orphan asylum in St. Paul; a double epidemic, rötheln appearing first, but it was soon followed by the genuine measles. Although they found in certain stages that it was difficult, by comparing the eruptions, to distinguish between them, nevertheless, they found the difference between the two diseases, taken as a whole, extremely well marked. Some of the children had both diseases, and the one or the other came first quite indiscriminately.

Variations occur in the different stages of all the eruptive diseases. Undoubtedly, in measles, it occasionally happens that the prodromic symptoms are so slight that they are overlooked. But to say that this fact prevents the differential diagnosis between measles and rötheln without regard to the other marked differences, is as illogical as to say that there is no differential diagnostic value in the short prodromic stage of scarlatina as compared with measles, because measles is sometimes not suspected until six hours before it breaks out.

In measles the fauces are sometimes so much inflamed before the eruption appears that a physician may well be in doubt for a short time whether he has before him an anomalous case of measles with an ill-marked cough, or an anomalous case of scarlatina with an accidental cough, but under such circumstances he does not hesitate to say that the future development will quickly clear up the doubt. And likewise, at any given moment, it is sometimes difficult to say whether a case is an anomalous case of rötheln, or an anomalous case of measles, but the further development makes the differential diagnosis as plain as between scarlatina and measles.

I wish to emphasize the fact that a typical rötheln does not in the least resemble a mild case of measles. A patient's skin may be covered with a brilliant rash, yet this eruption will have come in a flash and will disappear almost as fast after a very short stay, whereas the similar appearance in measles would have come on slowly, have remained longer, and have disappeared by slow degrees.

More is said about the resemblance of rötheln to measles than about its resemblance to scarlatina, but in some cases, for a short period, its resemblance to scarlatina is more striking. Scarlatina usually appears at outset in very fine red points as if, as has been said, red pepper had been sprinkled on the skin, but sometimes these spots are not so very fine and more pink than red, and then the eruption looks quite like rötheln. This resemblance, however, does not last long as the disease develops.

As Henoch has been quoted as being sceptical with regard to the independence of the disease, I quote his words: "My own experience does not justify me in coming to a decision in this question. Although I have here and there seen a couple of children in one family with a disease corresponding to rötheln of the authors, and not infrequently observed cases that left me doubtful about the diagnosis, yet I have never hitherto had an opportunity to observe epidemics or endemics of the kind such as have been described by others. So long as this is the case, I am not able to decide in the favor of the independence of rötheln."

I will add a short account of an epidemic that occurred in a family in December, 1880, and January, 1881.

On Sunday, December 26, 1880, A. L., about seventeen years old, had a slight headache and felt a little hot. After dinner an eruption of pink spots appeared on his face and spread generally over his body. By Monday morning there appeared a red blush, especially on his back and shoulders, which faded out during the day, and on the third day was almost invisible. I took it for an anomalous case of scarlatina, not being, at that time, well acquainted with rötheln, although there was but slight elevation of temperature; and, to his disgust, kept him in his room, though he seemed perfectly well, and though the eruption had faded almost as soon as it appeared, expecting to see the attack followed by desquamation; although I was obliged to confess to the family that I had never known scarlet fever to behave in this way before. This expected event, however, did not occur.

On December 30th, E. L., his sister, about thirteen years old, was found covered with a fine papular eruption, with little or no elevation of temperature, and no constitutional disturbance except a little headache and a slight weakness of the eyes. She was kept in bed from Thursday until Sunday, when the eruption was entirely gone, and she was apparently well. As with all the patients in this group, I kept her in bed, as I was not, at that time, familiar with the peculiarities of the disease. Then, after an interval of eleven days and during the next following month, there appeared eight more cases of precisely similar character.

On January 10th, H. L., was found covered with a fine papular eruption, but had little or no fever, and made no complaint except to swelling of post-auricular and cervical glands. He was in bed for two days when the rash disappeared and he got up entirely well.

On the 12th of January, the mother of the family found herself thickly covered with a similar eruption. During the day before she had noticed that the glands of her neck were tender, and she was slightly hoarse. On the same day at noon, M. L., about eight years of age, on the next day, J. L., and four days later, R. L., eighteen months of age, were attacked; each one was ill two or three days.

M. S., a housemaid, had it on the 26th of January. She had a cold at the time and some cough, nevertheless she was entirely well in three days.

An aunt who had been a constant visitor at the time, had a similar attack, beginning January 19th.

All of these patients had had measles except the two youngest children, and of these two, the elder one had measles a little over a month later, and the youngest has not had it.

To sum up, I believe that rötheln is an independent disease with its own characteristics. Though at a given moment an anomalous case of rötheln may closely resemble an anomalous case of scarlatina or an anomalous case of measles, yet this similarity rapidly disappears. Taken as a whole, rötheln differs from any other disease in its incubation, its prodromes, its invasion, its eruption (and other symptoms of the eruptive stage), its complications, its sequelæ, and finally, in the results of its contagion.

THE TREATMENT OF SENSITIVE SPINES.[1]

BY ROBERT W. LOVETT, M.D., BOSTON.

I WISH to call to your attention and to speak of the mode of treatment of an affection of the spine, the proper name of which I am unable to give. The condition is manifold, and is surrounded by much neurological obscurity as to pathology, etiology and nomenclature.

To the surgeon it appears as a sensitive and painful condition of the spine, manifested by sensitiveness most often over the spinous processes of the vertebræ, pain in motion and manipulation; and in most of the cases that I have seen it has been associated with a certain amount of general neurasthenia. The painful condition of the spine is evidently not the result of organic disease of the spine or cord, for the patients recover in most instances under proper treatment. On the other hand, with temporizing measures, the condition persists for years, varying but little, and leading generally to a bedridden and helpless condition in the severer cases.

It seems wiser for me not to attempt to speak of this condition by any other term than a sensitiveness of the spine. If I use the name, irritable spine, or any similar one, I may commit myself to some definite neurological theory without being conscious of it; and I wish merely to speak of the condition in its practical surgical aspect.

But in looking over the literature, I have found described, under various names, a condition which in some instances was identical with this and which was classed under the names, spinal concussion, spinal neurasthenia, spinal weakness, spinal irritation, functional disease of the spine, hysterical spinal disease, and the like.

[1] Read at the Boston Society for Medical Improvement, March 27, 1893.

In the cases that I have seen, in most instances it has been possible to trace the beginning of the symptoms to some injury, but in other cases the same symptoms have been present without any traumatic origin; so that it seems to me that the name for this condition should not be one which asserts anything about its causation. The injury causing the trouble was in most cases a fall, more or less severe, jarring the spinal column. In one instance, a railroad accident was the cause, in another, a wrench of the back in playing foot-ball; but in general the spinal sensitiveness was a remote rather than an immediate result of the accident. In other cases it began slowly, perhaps after some exhausting disease, as in one case after typhoid fever.

The symptoms are local and general. Locally, one finds pain and sensitiveness sometimes spread over the whole back, but at most times limited to a certain area over the vertebral column. It may be cervical or it may be confined to the sacrum and coccyx; and a fairly common situation is over the sacro-iliac joints, but in my own experience it has been most often situated in the dorsal or lumbar region. This sensitiveness is to both deep and superficial pressure. It is often sharply localized, and the pain is generally limited also to the area affected. Standing aggravates the pain, as do also riding in a carriage or car and sitting in an uncomfortable chair, so that relief is sought in recumbency. At times, the pain persists during recumbency, but even in these cases it is made worse by sitting, standing or walking.

On examination, one finds in the lighter cases a perfectly flexible spine, but motion may be voluntarily restricted in certain directions on account of the pain caused. In the severer cases the spine may be, and generally is, held quite rigid over the affected area either by voluntary or involuntary muscular effort. This stiffness is a most perplexing matter in the diagnosis at times.

There is no angular deformity such as one finds in Pott's disease, although unnatural attitudes may be assumed on account of the sensitiveness, such as a rounding out of the whole back in the dorsal region or a slight lateral deviation. The connection of lateral curvature and this spinal sensitiveness has been but little referred to. Indeed, this whole condition, so far as I can learn by my reading, has been much neglected from a therapeutic point of view.

The most important local condition has been left to the end, as to the writer's mind it is of the greatest aid in the diagnosis and the chief indication as to proper curative treatment. This condition is muscular weakness, both general and of the spinal muscles. It is to be noted on inspection and by measuring the strength of the muscles of the back by manipulation. This theory of muscular weakness, for which I am indebted to Dr. Bradford, explains the pain on the supposition that in the absence of proper muscular support the body weight comes more upon the posterior spinal ligaments and the fasciæ and aponeuroses of the back than it should, and that this is the immediate and primary cause of the pain. Just as in flat-foot, when first the muscular support gives place to ligamentous support, intolerable pain is to be felt in the ligaments. This does not, and cannot be assumed as the cause of every case of spinal sensitiveness, for it occurs at times in patients with muscles of normal strength, as measured by an apparatus for testing the back mus-

cles. The theory simply serves to explain to the surgeon the cause of most cases and to suggest to him the proper line of treatment.

This theory of insufficient muscular support does not in any way assume that congestion of the affected areas may not be present or that the blood-supply of the spine may not be seriously deranged. It only states the fact that muscular weakness is almost invariably present, that increasing the muscular support in most cases cures the sensitiveness. The condition on this supposition would seem more akin to painful flat-foot than to anything else. It is upon this theory of insufficient muscular support, generally in connection with neurasthenia, that the treatment about to be described is based.

The general condition of these patients is of the utmost importance and significance. In most cases they show marked symptoms of neurasthenia. They are, for the most part, young and middle-aged women of nervous temperament and poor development. They have such symptoms as the globus hystericus, basal headache and a stiffness at the nape of the neck, ovarian tenderness, prickling of the hands and feet, confusion in talking, and the whole class of symptoms grouped as neurasthenic. They may or may not have uterine trouble severe enough to be of account; but their symptoms of spinal sensitiveness are almost invariably worse when they are menstruating than at other times. The general condition is always poor, and, as a rule, the patients are badly nourished. They walk feebly and stiffly, and often they are entirely bedridden.

The diagnosis is generally easy from Pott's disease, which is the condition for which it is very often mistaken. But cases may occur where the diagnosis is impossible for a time.

There is no angular deformity as in Pott's disease. There is, however, extreme sensitiveness of the spine to superficial pressure, which is almost never present in Pott's disease. Flexibility of the spine is the rule; whereas in Pott's disease rigidity is marked. The presence of neurasthenic symptoms would lead one to assume the presence of the less serious disease.

In a word, the disease has no angular deformity, neurasthenia is generally present, the spine is sensitive to the touch, and flexibility is not impaired much except in advanced cases; and advanced cases of Pott's disease always show unmistakable deformity.

To illustrate the difficulty of diagnosis I may mention one case. A young man from another city came under my care last summer who had been under the care of one of the leading orthopedic surgeons of the country. He had diagnosticated Pott's disease two years previously, and had applied a steel back-brace. The young man wore it for a year or so, gradually discontinued it, had a relapse, reapplied it, and on taking it off had another relapse. Seen by a surgeon of national reputation, he was told to throw away the brace and exercise. This brought on much pain; he was crippled and bedridden, and when he came to me could scarcely walk. At this time I believe that a diagnosis was impossible. There was a suggestion of neurasthenia, and I put him to bed and overfed him. He responded at once. I gradually increased the exercise until he took an hour a day. Massage restored the flexibility to the spine and the diagnosis became clear. There was not, and probably never had been, Pott's disease. After nine months he is quite well, rides horseback and dances, and never feels any pain in his back.

The treatment which I wish to describe is not, I fancy, in any way new; but I do not know of any place where one can find it formulated for these cases, and it has in my hands yielded the most satisfactory results.

The severer cases and those in which the general condition is markedly poor should, I believe, be put to bed for some time and treated by the Weir Mitchell plan of rest and feeding. This, it seems to me, is indicated, both as a means of improving the general condition and also to quiet and rest the irritated spinal ligaments by removing the strain from them. The patients are kept entirely recumbent, and are made to use the bed-pan in the more severe cases. They are fed every hour or every two hours, taking in the twenty-four hours eight to fourteen eggs beside milk, beef-tea and meat. They are massaged gently every second day; and after a few days of this treatment, the use of faradic electricity is gradually begun on the day when massage is not given. The back is excessively sensitive, and the current is mildly applied, avoiding at first the sensitive spots. Massage and electricity rapidly diminish the sensitiveness of the spine.

After a continuance of this treatment for days or weeks, according to the general condition of the patient, she is allowed to sit up in an easy chair for five minutes, with the back supported; and then the time is rapidly increased.

At this time one begins upon exercises calculated to develop the erector spinæ muscles. These exercises have in my experience invariably aggravated the pain which is generally much diminished by the recumbency. The exercises prescribed are arch flexions of the spine when sitting; then resistance is offered to backward flexion of the trunk with the arms behind the head; and finally, when the patient is much stronger, she lies on the face and the feet are held while with the arms on the hips she flexes the trunk. It is merely, I believe, a question of prescribing easy motions which cultivate the erector spinæ muscles, and addressing them particularly to the region most affected, whether cervical, dorsal, or lumbar. One of the most successful cases that I have treated in this way was a young woman where the pain and sensitiveness were limited to the sacrum and coccyx; and it required the most intimate knowledge of the Swedish movements on the part of the masseuse to apply them so as to reach the proper muscles.

As the exercises are prescribed the patient is encouraged to walk a little; and if spinal motion is very painful, a supporting brace is allowed, which consists of a steel waist-band and two tempered, steel uprights fastened to shoulder-straps. This is used merely to support the spine until the muscles are able to do so; and is to be regarded as a temporary measure, to be abandoned at the earliest possible moment. The patient is gradually encouraged to do more each day without regard to her sensations, except during menstruation when she is kept in bed.

Personally, I always have cases where there is any question of uterine trouble examined by a gynæcologist, to be sure that no uterine displacement exists, which might cause the backache. The patient is encourged to progress as fast as may be, and to leave invalid ways behind her. The treatment is, in a word, first rest, and then muscular development in connection

with the most effective measures addressed to the general condition.

But a great many patients do not need such stringent measures as these, nor, on the other hand, can every one give up entirely for weeks or months; and a treatment which can be pursued at home and which is perfectly suitable for lighter cases must be found. These patients should be encouraged to lie down at least part of the day; even working people can save two or three hours by going to bed early. If possible, they should lie down both morning and afternoon, and should get up late. In short, the same aim of resting the back should be kept in mind as in the severer cases, and this should be accomplished in every way.

In such cases as these I apply the elastic brace almost as a routine treatment; and in one or two of the severer cases I have used a rigid steel back-brace to prevent spinal motion when the sensitiveness was severe, taking it off only for the exercises.

The general condition is most carefully looked after, the bowels are regulated, the appetite is stimulated, and eggs (from six to ten daily) are prescribed, often with a little alcohol. Walking and riding are almost invariably painful; and it is always a question how much of these should be done. It seems best at first, during the period of rest, to limit them as much as possible and to increase them very gradually, laying the chief stress upon exercise directed to the muscles affected.

Many patients cannot afford, or for some reason cannot have, massage and electricity; and yet they do well, only they progress more slowly. If attainable they are, I believe, of the utmost importance. Hot douches to the spine have often been of use in such cases. The exercises are the same as those used in the severer cases; and for the best results the cases should, I believe, be in the hands of some person skilled in massage and Swedish gymnastics. The tendency is certainly to err on the side of encouraging these patients to do too much, to walk too far and to overexercise, and one has to remember continually how great is their disability and how carefully they must be handled.

The brace is gradually discontinued, the amount of exercise increased, and the period of recumbency diminished. It is the same plan of treatment as before — first rest, and then graduated and progressive exercise; and these are no more important than is the general routine of treatment addressed to the general neurasthenia; either alone accomplishes little.

It is hardly necessary to call attention to the fact that a positive diagnosis must be made before this treatment can be successfully carried out. It is just opposite to what one would desire to do in Pott's disease; exercise always increases the pain, and a certainty on the part of the surgeon is necessary to secure the proper morale on the part of the patient.

The treatment, then, may be dismissed as consisting of general measures along with rest to the irritated ligaments, followed by active muscular exercise addressed to the supporting muscles of the spine. Electricity and massage by themselves are to be regarded only as subordinate measures to be used when practicable, and by themselves as affording very incomplete treatment. The need of counter-irritation to the back, and burning with the cautery, is not felt with the above-mentioned measures.

Clinical Department.

A CASE OF EXTRA-UTERINE PREGNANCY.

BY D. E. BAKER, M.D., NEWTONVILLE, MASS.

THE patient, twenty-four years of age, was first seen at my office in January of this year, when she complained of pain in the stomach, flatulence, rumbling of flatus in the bowels, weight and soreness in the lower abdomen. She was nervous and anæmic. She had been married five years, and four years ago had had a miscarriage at six months. She had been in ill-health much of the time for years, suffering from backache, vague pelvic pains and constipation. Tonic treatment, including iron, improved her flesh and color. Menstruation was regular until January 28th, when it failed to appear at the proper time. When nearly a week overdue, she began to complain of pain along the rectum when standing, with the feeling that the bowels ought to act; but defecation failed to give the expected relief. There was some tenderness in the left iliac region. The breasts were sore to the touch.

Examination by the vagina showed the uterus enlarged, pushed to the right and somewhat forward and lower than normal. At its left a mass, oval in shape, slightly movable and tender to the touch, could be distinctly outlined. The diagnosis of probable extra-uterine pregnancy was given the patient; and she was charged to remain in bed, as the pain and pressure were so marked when on her feet.

On examination thirteen days later, the mass had enlarged considerably and was felt lower and more behind the uterus. Sensitiveness on vaginal and rectal touch was greatly increased. Meanwhile there had been an irregular flow of dark blood from the uterus. The tumor was thought to be an unruptured tubal gestation, and the patient warned of the danger of hæmorrhage and inflammation, and advised to have the mass removed.

The next day Dr. Wood, of Waltham, saw the case in consultation and concurred in the diagnosis and the necessity for immediate operation. By courtesy of the Waltham Hospital, the patient was at once removed there for operation.

March 17th, the patient was etherized by Dr. Winslow, Drs. Wood and Cutler assisting in the operation. The abdomen was opened by an incision three inches long. No blood was visible upon entering the peritoneum; but in disturbing adhesions at the left of Douglas's fossa, a few drops of dark, extravasated blood were sponged out. A mass the size of a lemon was isolated from the left ovary and rectum, to which it adhered, and delivered through the abdominal wound, the Fallopian tube ligated, and the tumor cut away. The right ovary presented a cyst the size of a walnut, which was dissected away from its bed, and the resulting raw surface closed by sutures of fine silk. The hæmorrhage was insignificant and the shock but slight.

The patient rallied well from the ether, but for three days had a severe bronchitis, with profuse expectoration, at first mucous, later muco-purulent in character, accompanied by cough and pain in the right side. Digitalis was freely given with the nutrient enemata until the moist râles throughout the chest had cleared up and the pulse came down to 50. On the 18th an enema of salts, glycerine and water was given to re-

lieve the distention and slight colicky pain in lower abdomen. Much flatus escaped and large fæcal discharges resulted; and thereafter the bowels were moved by licorice powder.

Convalescence was rapid after the first four days. There was no fever nor untoward symptom aside from the chest disturbance following the anæsthesia. The stitches were removed on the ninth day; the patient sat up in fourteen days, and left the hospital at the end of three weeks. She is now in better health than before for several years.

Dr. F. B. Mallory, of the Harvard Medical School, reported upon the specimen as follows:

"The tumor received formed an oval mass five centimetres long and three centimetres in diameter. From the slightly smaller end hung the fimbriated end of the Fallopian tube. The oval tumor consisted of a thin-walled sac, containing a solid mass of dark clotted blood covered with a very thin membrane. This mass was adherent to the inner wall of the sac at its larger end toward the proximal extremity of the tube over an area two centimetres in diameter. The lining membrane of the sac was smooth, glistening, unstained by blood and apparently extended up over the solid mass at its point of attachment. A probe passed into either end of the Fallopian tube passed directly into the sac. The specimen when received had been cut into, and the sac retracted. In its retracted state it was from one to one and a half millimetres in thickness. Externally the tube and sac were covered with numerous fibrous adhesions. A fragment from the base of the solid mass, at its point of attachment showed on microscopic examination, typical chorion villi in a condition of marked fatty degeneration. No fœtus was found. The case is one of tubal pregnancy, with hæmorrhage into membrane."

This is the second case seen by the writer within six months. The first, diagnosticated in consultation with Dr. Carroll and advised to enter the Waltham Hospital for operation, is No. VI of the series reported by Dr. Worcester in the JOURNAL for February 2, 1893.

I recall a case I treated early in 1885 as an hæmatocele, which I now think was a tubal pregnancy. The case was a long and tedious one, complicated by recurring hæmorrhage and suppuration. I should now prefer to treat such a case by abdominal section. In none of the cases where I have opened the abdomen were the required manipulations easier to perform than in the case here reported.

An early operation, when the symptoms become threatening, clears up many anxious doubts and gives the physician control of the issues at stake as it can be obtained in no other way.

TREATMENT OF LOSS OF SEXUAL POWER BY LIGATION OF VEINS.

BY ALFRED KING, M.D., PORTLAND, ME.,
Surgeon to Maine General Hospital.

THE loss of sexual power, or rather deficient erections of the penis, render so many men miserable mentally and physically, that any new method of treatment promising a radical cure merits investigation and trial.

Three immediate causes of deficient erections may be specified: destruction of the erector muscles, loss of nerve power, and a change in the circulation. The first of these is so rare and so easily determined that it needs only a passing notice. The second cause, loss of nerve power, seems to me to have received more prominence than it deserves, as it is the basis on which almost all treatment is founded. While its force in many cases is undisputed, yet the frequent failure of treatment based upon it leads me to direct attention to the importance of the third cause, that is, a change in the circulation. This change takes place in the veins, especially those which do not pass beneath the pubic arch, or are not acted upon by the erector muscles. Repeated engorgement of the penis renders their calibre larger and, consequently, there is a more rapid escape of blood through them. When, therefore, an erection takes place, it cannot be maintained on account of the escape of blood through these channels. Thus we have the history of a gradual shortening of the duration of erections, and, finally, scarcely none if any, as these veins grow larger.

The remedy for such a condition, especially when far advanced, is not in the use of drugs, but may be brought about speedily and safely by the ligation of some of the larger of these veins.

The following case is given to illustrate this cause and its successful treatment:

Mr. M., aged thirty-five, a laborer of powerful physique, came to me about a year ago with the following history: For several years he had been losing the power of maintaining an erection, during the past year its duration having been so short that sexual intercourse had been rendered impossible. There was a loss of sexual desire and great mental depression. Excessive use or abuse was the cause of this condition.

I gave all possible encouragement to the patient; advised total abstinence from sexual intercourse, cold baths (especially to the spine and external genitals); prescribed bromides, cannabis indica, cantharides, damiana, phosphorus and salts containing it; pushed strychnine as far as it could be borne; gave various tonics; used electricity; and, in short, tried everything which offered any hope of success, but all to no effect so far as producing any stronger erections was concerned.

Careful study of the case convinced me that the immediate cause of the trouble was a physical one, due to a leakage, as it were, or to a too rapid escape of blood from the penis when erected. I, therefore, determined to ligate a couple of the larger subcutaneous veins at the base of the penis and watch the effect.

This was very easily done by the use of cocaine. A vein on each side of the penis was exposed, ligated in two places and severed between the ligatures. A dressing was lightly applied and held in position by a strip of adhesive plaster placed longitudinally. The result was immediate. In less than five minutes after leaving my office he had an erection. That night he was awakened by a powerful erection which made the bandage so painfully tight that he was obliged to jump out of bed onto the cold floor to subdue it. Primary union was prevented by the frequent erections, but the success of the operation was certain.

Two months later he reported himself well, mentally and physically; his sexual appetite had returned, and since the operation, his power of maintaining erections had been as good as ever.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. T. BOWEN, M.D., SECRETARY.

REGULAR meeting, Monday, March 27, 1893, the President, DR. C. F. FOLSOM, in the chair.

DR. C. P. PUTNAM read a paper on

IS GERMAN MEASLES (RÖTHELN OR RUBELLA) AN INDEPENDENT DISEASE?[1]

DR. E. G. CUTLER: If there remain any doubt in the mind of any person present as to the dissimilarity of these two diseases, I think he ought to be convinced by consulting these charts of temperature passed about. Of the thirty-five cases, there are but two in which the temperature has reached 101°. I should think that was sufficient to stamp the dissimilarity of the two diseases. I do not recall a single instance of measles where the temperature was not elevated. In all of these cases in which there was eruption, if it were measles it seems to me that it is impossible that it could have been otherwise than that many should have shown a very considerable degree of elevation of temperature. The temperature curve is so characteristic of the true form of measles that within two or three days you can be sure of it, and the color and shape of the eruption, the place where it begins, the way it spreads, and the way it terminates are characteristic in measles; and the greater amount of enlargement of the glands, the sequelæ and the absence of any desquamation of any kind are characteristic of the other form. I had at one time a large number of children under my charge; and as one after another was admitted to this institution the history was taken off on a card or in a book, and the number of cases which had had some form of the eruptive diseases was very large. At one time we had an epidemic in this institution of what I considered to be German measles. It ran through quite a large number, and it did not spare quite a number of children who had been reported to have already had the true measles. The proportion was so great that it was not at all likely they had suffered a second attack of the true measles. I do not remember ever to have distinguished the odor in German measles that many authors speak of as so characteristic in true measles. It is quite distinct in true measles. I remember to have had three children at one time with true measles in quite a large room, and the odor was so characteristic that it was noticed by several persons who were uninstructed. At the time I had this number of German measles in the institution there was nothing characteristic about the odor.

DR. HAROLD WILLIAMS: I am sorry to say that my view is a different one from that of the gentlemen who have spoken. Before I came here I looked up the literature of the subject. I have been struck with the different descriptions given by different authors. I never have seen a case in which I could satisfy myself that rubella was a distinct disease. I have seen severe and mild measles, but never have seen a case I could say was a different disease from the mild type of measles. Now, it is a question of great practical importance whether these diseases are different. If we have measles we adopt certain very marked precautions against the dissemination of the disease, but if we speak of rubella people think it is a very mild affair and do not half carry out preventative precautions and the disease is spread. It seems to me that, practically, we are dealing simply with mild and severe measles, and that it is unwise to make this distinction until more differentiated, or a distinct bacillus is found.

DR. E. M. BUCKINGHAM: The reason that there is any question as to the identity or non-identity of these classes of diseases is probably that the so-called German measles is so mild in character that it is not well observed. The patients are not sick enough to be followed up in private practice, and they rarely get into the hospitals. It is only when such favorable opportunities occur as Dr. Putnam has had that we can conveniently study them.

We are said to have two diseases, each with an incubation and a prodromal stage, but in rubella the incubation is larger and the prodromal stage milder. Now, first, the incubation differs in measles as it does in scarlet fever; and, second, the beginning of a mild prodromal stage is likely to be overlooked, leading to the assumption of too much time as being occupied by the incubation. This is a matter of scientific consequence though seldom of practical use in making a diagnosis.

The prodromal stage in these two diseases is the same, with the difference that one is more severe than the other. That is the view that is generally taken. I had the opportunity through the kindness of Dr. Putnam, to see some of the cases he reports, and although, as he says, the prodromal stage was very slight yet there was a certain amount of catarrhal symptoms in some of them. I have also been shown other cases in which there were a set of catarrhal symptoms likely to be overlooked because of their mildness. The eruption is much alike in these two diseases. As for the eruptive stage being so mild that the case is only accidentally discovered, I have discovered scarlet fever in that same way, where, nevertheless, no one would have doubted the diagnosis. A difference in the color of the eruption is sometimes made much of as a distinguishing mark. Last summer there was an epidemic of *something* that came to the City Hospital, and I had the opportunity to point out again and again, that in a given case you would have one shade of color on one day and another on the following day. It is a fact that the color of measles does vary from day to day. Something has been said about the crescentic form of the eruption in measles as distinguishing it from German measles. I have seen two children in the same house at the same time, one with crescentic eruption and the other without, and I have seen this more than once. I am not yet prepared to speak of the size of the papules, another supposed diagnostic mark. The gland which is so generally spoken of as being found enlarged in German measles — perhaps I am not a good authority because I cannot make the diagnosis — I have seen enlarged in many cases of severe measles, and, on the other hand, this gland as it has been pointed out to me in many cases of so-called German measles, has been so small that I could with difficulty find it.

Failure of desquamation is another point relied on to prove the existence of a second disease. There are, however, a considerable number of cases of measles that would be accepted by any one as such, in which the desquamation is so slight that unless you take special pains to find it you will miss it.

[1] See page 30 of the Journal.

Dr. Putnam spoke of the hospital where they had both diseases at once. I do not see really why if one child had a light and then a severe case and another child a severe and then a light one, why that could not have been reinfection. The statement has been made that we must have two diseases because we do have two attacks. It seems that that is assuming more than we know, and it does not account for third attacks. The third attack is not particularly uncommon. You can have second attacks of scarlet fever, and of small-pox, perhaps of syphilis. I do not see why measles should not have second attacks also.

With reference to the matter of one attack protecting against another, or one of these diseases protecting against another disease, Dr. Townsend read a paper a few years ago in which he reported the results of observations where he had unusual opportunities to observe, which seemed to show that these very mild attacks do, to some extent, protect against the more severe cases, and *vice versa*.

Furthermore, I have myself seen very severe cases and very light cases of measles in the same room at the same time, one with severe and one without appreciable catarrhal symptoms.

I think that there are two arguments in favor of distinct diseases worthy of respect. One is the argument Dr. Putnam has made, that we do have epidemics in which all the cases are very light. It seems to me that when the question of there being a separate disease came up, and some one observed an epidemic in which all his cases were very light he was warranted in asking: "Is it the same disease?" and in trying to learn to make a diagnosis. That was a scientific thing to do. Years have passed, and it does not seem to me the question has been answered. Still the fact that epidemics confined entirely to light cases do exist is certainly suggestive of there being possibly two diseases; but on the other hand, it is not an unknown thing to have epidemics of other diseases which are different from each other. We do not always know the reason, but some epidemics of typhoid are more severe than other epidemics. I think the same thing is true of the whole list of contagious diseases.

There is another argument which might be offered, and that is that the majority of physicians do believe in the non-identity of these two diseases. I think that where you find a mass of intelligent men deciding on any question in their own profession, even if their reasoning is not sufficiently clear to be expressed in words, yet that the mere fact that they have a strong impression tending in one direction, as there seems to be an impression of the non-identity of these two diseases,—I think that that is an argument we have to respect; but it does not prove to my mind that they are right. It seems to me, on the whole, that the weight of argument at present is the other way; and certainly, although I am open to conviction, I cannot see that it has been proved that there are two diseases. I suppose the question may be settled in the future by the bacteriologists.

I wish Dr. Putnam would tell us how in an individual case to make the diagnosis.

DR. H. JACKSON: I think the charts which Dr. Putnam has shown us are extremely interesting. It would certainly be rare to observe 35 cases of measles in so few of which there was any rise of temperature. In one or two cases the temperature rose to 100°. In another case the temperature was on a single day 104°, but it was in the middle of the attack, so it seems to me as if the temperature must have been due to some other cause. But more interesting to me than the temperature charts was the absence of prodromal symptoms in these cases. This winter there have been a good many cases of measles, and I have been interested in noting the prolonged and often marked prodromal symptoms which preceded a very mild case of measles, notably two cases that I have in mind. The children were quite sick for three days. On the first day high temperature, less on the second and third days, and on the fourth day the full measles eruption. In one case there was no fever after the appearance of the eruption; so that the cases I have seen this winter have been mild as far as the eruptive stage and subsequent course went, but the prodromal stage in all was quite as marked as in severe cases. Also the temperature of the prodromal stage is peculiar, the temperature being high on the first day or two, and on the second or third days much less high, the temperature often being normal on the second day.

Dr. Putnam spoke of enlargement of the glands in two of his cases in private practice. I should like to ask whether any observations were made as to this point in the cases in the institution. It is spoken of by Osler as quite marked in German measles. He is very strong in his feeling that German measles is a distinct disease. He speaks of the color of the eruption, the glands, the longer course of the existence of the eruptive stage in rubella than in measles and then of its being more common in adults.

DR. ABBOTT said that he fully agreed with Dr. Putnam that measles and rötheln are distinct diseases. He well remembered the first case he ever saw, that of a man, many years ago, who consulted him as physician to out-patients at the Massachusetts General Hospital. The patient had walked to the hospital with the eruption of German measles fully developed on him. This had led him to seek advice, the constitutional symptoms being insignificant.

Since that time he had occasionally met with cases; and in some instances the diagnosis was puzzling and not to be confidently made out at the first interview. He had lately seen two cases, the patients being sisters, who had had measles in earlier life. In this instance the disease was communicated from one to the other. Neither of them required any constitutional treatment. In both of them, on each side of the neck, was a chain of small, enlarged glands, from the size of a small pea up to that of a cherry-stone; concerning which an attempt has recently been made to regard it as a pathognomonic sign of rötheln as distinguished from measles.

As to the possibility of measles occurring three times in the same individual, discussed by Dr. Putnam, he could say from personal experience that it may happen. In a family which he had attended for years he had treated three sisters for three attacks of measles, one communicating the disease to the others in each instance. The last attack was several years since, and was extremely light, with very little eruption. The catarrhal symptoms, however, were marked, and the source of the infection was positively determined. In conclusion, Dr. Abbott asked if Dr. Putnam had noticed in all his cases the chain of enlarged cervical glands which he had spoken of.

DR. C. W. TOWNSEND: I have been very much interested in Dr. Putnam's cases, that at first sight seem to be very conclusive of the existence of rötheln. I

was surprised, however, at his statement that there were no degrees between rötheln and measles, — that there were no cases that seemed half-way between the two. I think that that is a very erroneous statement, as is shown by the examination of most epidemics. The epidemic Dr. Buckingham referred to, an account of which I published, I examined with special reference to the subject of rötheln. There were 76 cases of undoubted measles, some of them of the most severe type; and at the same time with those of severe type there were some of the mild type; and a great many of the mild type were exactly like the cases described as rötheln. The prodromal stage was absent in a good many of these cases. Out of 66 where this prodromal stage was carefully noted, in 17 it was twenty-four hours or less. In eight or ten of these I believe nothing was noticed before the eruption. The catarrhal symptoms were extremely mild in many of the cases; little or no conjunctivitis in some; fever very slight. In one case, on the second day of the eruption, the temperature was 99.4°. On the third day, though the eruption was quite thick, the temperature was 100.4°; and the child also had had measles before. Another case still more striking was one I had seen two years before, in an epidemic where nearly all the cases were of the severe type. In this case the child, who had had measles before and was exposed to measles at this time, developed an eruption without any previous symptoms at all, and the eruption lasted only two days. The spots were of light pale pink color, and were not confluent. The color, I think, depends a good deal on the intensity of the eruption; and the confluence also depends on that.

Just before I came here to-night a medical student brought his brother to my office for me to make the diagnosis of measles. I promptly took him out of my office, but I saw him long enough to see that he had conjunctivitis, that he had apparently a measles eruption on his face, and the glands of his neck were swollen. He had had measles five years before, had been exposed to measles lately in Cambridge. He is feeling a little poorly, but had no symptoms before the rash appeared this morning. Temperature 100.4°. It seems to me that was a typical case of rötheln. Yet it arose from exposure to measles. We see all degrees between that case and the severe case of measles; and even the typical cases of rötheln, so-called, are not so different from the severe measles as mild scarlet fever differs from severe scarlet fever or mild typhoid fever from severe typhoid fever.

As to the enlarged glands and sore throat which are said to be characteristic of rötheln. In that epidemic where I made special note of this point the enlargement of the glands was a very varying factor. It occurred in the mild case and also in the severe case. There seemed to be no rule about it. In other words, we have all grades between typical rötheln and typical measles.

Now, as we cannot make the diagnosis from a single case — I think Dr. Putnam would admit that; even Strümpell admits that you cannot make the diagnosis very often from one case — and the chief faith in the separate existence of rötheln is founded on the fact that previous attacks of measles give no protection — the question comes how many second attacks can we have in an epidemic. There was a small epidemic at the McLean Asylum in Somerville at the same time I was studying this epidemic in Boston, occurring in ten adults who had had measles before. Measles at that time was common in Somerville. I went out and saw some of the cases, one a medical student who found the eruption coming on without any prodromal symptoms while he was in Boston. He had enlarged glands in his neck and groin; but, instead of a mild eruption like the ordinary eruption of rötheln, it was a confluent and crescentic eruption like measles. He had a temperature of 102°. The other cases were more or less severe like measles or rötheln. Now we might say this was an epidemic of rötheln as they all had measles before, or an epidemic of measles with an unusually large proportion of second attacks; but the question is where are we going to draw the line. Suppose only five of these cases had had measles before, we should then be more inclined towards the diagnosis of measles. It seems to me this almost brings the question down to a *reductio ad absurdum*. I do not mean to say that I do not believe that rötheln exists. I simply see no proof of its existence, and I should like very much to hear Dr. Putnam give us some definite way in which we can distinguish the disease.

Dr. Putnam: About the discrepancies in the description of the disease. It should be remembered that if discrepancies exist in so-called rötheln, and rötheln is a part of measles, it shows there are many more discrepancies when we take measles together, if measles includes both. There are variations in all diseases. I compared to-day two accounts of measles by different writers, and they sounded very different from each other. I believe that the essential points show similarity.

Answering Drs. Buckingham and Townsend, who say they have seen cases of undoubted measles come on where the first thing discovered was the eruption, and where the patients could give no history of prodromic symptoms of any moment, I can only say that I have not had this experience. I have lately had a mild case of measles where the eruption was so slight that it appeared only in a few spots on the skin, but the prodromic symptoms were well-marked. I have never seen a case of measles which went over the whole body in the course of a day. Measles is generally set down in the books as taking three days to go over the body. I never saw one that swept over the body in a few hours. Dr. Buckingham has seen a scarlatina where the eruption was the first thing discovered. But it is well known that in scarlet fever the prodromal stage is markedly short, whereas in measles it is markedly long.

I want to say a word about the gradations from what are spoken of as these very mild cases called rubella, and the more severe cases of measles as Dr. Townsend spoke of them, as if cases of rötheln were always like mild cases of measles or that they were always mild cases. In rötheln, the whole body, or a large part of it, may be a brilliant red, and yet the symptoms are mild. In measles, that is never the case as far as I know. When measles is light the eruption is light.

As to desquamation, I don't think much of that. I think the desquamation of measles can be avoided by keeping the patient's skin clean. I have patients with these eruptive diseases washed twice a day, and the desquamation in all of them is reduced to a minimum. I cannot say I have seen any desquamation in rötheln, but often do not see it in measles and do not say anything about it.

Dr. Abbott has reported a case of measles occurring

three times, but it seems to me the fact that it is recorded shows it is a rare occurrence. I should be glad if any member would tell us what personal experience he has of having seen measles occur twice in the same patient. I think it would be a very small number. I think very few of us can report any considerable number of these cases.

All the cases in this institution had enlarged glands. But I do not lay any stress on that because though more marked in rötheln they also occur in measles.

I stated that these two types of disease did not run into each other, and I cannot agree with Dr. Townsend that they do so; and I do not see how we can avoid thinking possibly some of those cases were German measles that occurred in that epidemic in the North End. It so happens that of these particular cases in this institution, the first case that was taken was sent to the hospital for measles. But I was convinced that these cases were not going to put the children in bed or give them any serious bronchial catarrh or any other serious symptoms, and the event proved that I was right. The same question has come up several times in private practice where there were two or three children, and I have said to people: this second one will have regular measles, or this other one will not have an illness which need be taken much into consideration.

I do not admit that I cannot make the diagnosis, and I am not willing to admit what Dr. Townsend says, that the chief refuge of the differentists is that measles does not protect from the other. I think there is no doubt that measles does occur more than once. The cases which Dr. Jeffries gave were very striking cases as relapses.

Is it possible that you should have thirty-two cases in an institution containing some hundred children where none of them had any prodromic symptoms that could be discovered except one, that no one should have had a confluent rash, that not one should have had a cough worth mentioning, or that they should be taken to have their photographs when they had been sick, and taken on a journey to the West, and some take it on the way and get well on the journey?

DR. R. W. LOVETT read a paper on

THE TREATMENT OF FUNCTIONAL AFFECTIONS OF THE SPINE (IRRITABLE SPINE).[2]

DR. G. L. WALTON: I have been very much interested in Dr. Lovett's paper. He strikes at the root of the matter in recognizing irritable spine as a symptom of neurasthenia, rather than a disease in itself. His general line of treatment is consistent with this theory. The various local remedies it has been the custom to try, such as ether-spray, hot bags, ice-bags, the cautery and iodine generally prove only temporarily useful, and it is satisfactory to have a methodical line of treatment laid out which reaches the underlying cause. Whether the symptom can be entirely explained by Dr. Bradford's theory seems to me rather doubtful. The pain in many of these cases persists even when the recumbent position is maintained, which would militate against the supposition that stretching of ligaments should be regarded an important factor in these cases at least, though the dragging pain sometimes experienced may be due to this cause. Hyperæsthesia is a common symptom, also a feeling as if the back were broken in two, a "goneness," a crawling, a grating pain, a coldness, and various other anomalous sensations, all of which may be fairly attributed to cerebral irritability rather than to a local condition. I have seen patients with such sensitive backs that the mildest application of electricity in any form would produce fainting. This can hardly be regarded as anything else than a cerebral condition.

DR. P. C. KNAPP: I have listened with much interest to Dr. Lovett's paper. I must admit that I can hardly agree with the views which he has advanced. He has described a condition which is familiar to every neurologist. I do not, however, agree with him in the symptomatology of it. A neurasthenic spine, in my experience, is not attended with that muscular rigidity of which he speaks. You get that in a certain number of the traumatic cases; but where you get the muscular rigidity it is not a true neurasthenic spine, but more of a traumatic lumbago. Furthermore, the theory which Dr. Bradford has suggested as an explanation of this pain I do not think is tenable. In the most pronounced cases of weakness of the muscles of the back, especially in the various forms of atrophy of the spinal muscles, we do not get this pain in the back. The true tenderness of the neurasthenic spine seems to me to be precisely analogous to the tenderness we get in other regions — the tenderness which is not uncommon above or below the clavicles, in the epigastrium, beneath the breasts in women, or the very familiar ovarian tenderness which is so common in hysterical subjects, and for which in times past gynæcologists have done a great deal in the way of interference, with unfortunately very little practical benefit; it is a referred pain of central origin and not due to a local lesion, and therefore I do not believe that in the true neurasthenic cases the use of the spinal brace is advisable. In the traumatic cases, where there is muscular strain the brace may often be of service. In all cases, the important thing is the general treatment, and in addition to the general treatment there is a method of treatment which Dr. Lovett has not mentioned which certainly is of the greatest benefit — the application of the galvanic current to the spine, beginning with a very mild current. In the very severe forms of neurasthenia it is necessary to put the patient in bed and to carry out Weir Mitchell's treatment to its fullest degree, but in the milder cases and in many of the cases we see in hospital practice that often becomes impracticable. The women have to keep about doing their work, and in those cases I have found that galvanism has been of the very greatest benefit.

DR. E. G. BRACKETT: I would like to bear testimony to the success that certainly attends this form of treatment in a certain class of cases that Dr. Lovett has described. There certainly are very many cases which come under the head he has described, and which are attended by the symptoms he has described, which are benefited very markedly by the line of treatment he has carried out. I have had the opportunity of seeing quite a number in the last four or five years, and have followed out very much the same line of treatment, and I think it does give some of the most satisfactory results that I have seen. There is a class of cases which he has described, and I think he has very wisely said that he should not give it any particular name — anything more than irritable spine. They are attended with neurasthenic symptoms. Perhaps I have been inclined to look at them a little more as due to local symptoms of a general neurasthenia rather

[2] See page 40 of the Journal.

than general muscular weakness, but they differ from the cases usually called neurasthenic spine, and undoubtedly require rather a different treatment than when the neurasthenic symptoms are extreme and the local less so. Most of these cases I have seen have been practically invalids for one to three years, and in that length of time there has come on a condition of chronic invalidism in which the inhibitory power of the patient has been almost entirely lost, and they have given up practically to their disease. In the treatment, it seems to me that muscular development is only a part. It is a good deal to regulate the life of a person who has lost nearly all power to practically care for themselves, as the healthy, well-regulated person should do. These are, by this method of treatment, practically put into a healthy routine; put into a way of improving their general condition. It is done by first regulating their life for them, and later allowing them to take up the reins as before they were ill; and, finally, their condition returns to health practically.

DR. GOLDTHWAIT: I have seen comparatively few cases of this sort, but I recall three very distinctly in which exactly this condition was present; and in each one of these cases there was a slight deviation of the spine and a very marked stoop-shoulder, to be explained, I think, in large part by lack of tone of the muscles and ligaments. Each of the three cases was treated in much the same manner as outlined by Dr. Lovett: two were kept in bed a few weeks, and the other was put on to exercises immediately; the symptoms very quickly disappeared. I should disagree with Dr. Knapp as to the wearing of the brace, as I think that some form of back support is advantageous. A good many of the spines are so irritable that patients on assuming the erect position complain of so much pain that they cannot go about. Some light apparatus gives them the support they need, and they are enabled to get into the open air and get the desired exercise. No doubt the cases would get well under galvanism and rest in bed, but the convalescence would be much prolonged, and I think the course of the disease is very much shortened by the application of some form of brace that allows the patient to be about.

DR. W. E. WEBBER: There are one or two points I think might be added. In regard to causation, I have found some cases where flat-foot has caused pain in the back and a condition similar to that described by Dr. Lovett, and by removing that, the trouble in the back has been relieved. I have one case in particular, in mind, in which the plates were omitted and the pain in the back returned. On resuming the use of the plates the pain in the back disappeared again. In addition to the remedies already mentioned, I have found a good deal of advantage in many cases from dry cups. I have used the rest in bed, feeding and galvanism and massage, and I think gymnastics is to be commended. I think Dr. Lovett did not mention one of the causes — lateral curvature of the spine, which is, perhaps, not a cause of the irritable spine, but one of the results of the muscular weakness, and in remedying that by gymnastics and exercise and by proper means, the pain has been relieved as well as the spine straightened.

DR. LOVETT: With regard to muscular rigidity in non-traumatic cases, I have said repeatedly that there has been a very decided rigidity of the muscles in cases where there has been no traumatism. I recall a case I saw lately in a girl of twenty years, where the trouble came on without any cause whatever. The rigidity of the spine was extreme, not perfectly stiff, but very marked, so much so that the young woman who gave the Swedish movement, said she never had seen anybody so completely tied up in every direction, but with three months of Swedish movement she has become flexible in every way.

EXHIBITION OF PATHOLOGICAL SPECIMENS.

DR. W. T. COUNCILMAN: The first case which I shall show is a very remarkable and inexplicable case of injury of the heart and lungs from violence. These specimens which consist of the heart, a portion of the right lung and of the right kidney, were taken from a strong, heavily-built man, thirty-two years old. He was cleaning the snow from a roof, and fell to the ground, a distance of about thirty feet. A large amount of snow fell with him, and it was not ascertained whether he fell on any prominent hard object on the ground. He was brought into the hospital unconscious. He partly recovered from his unconsciousness and showed symptoms which were thought to indicate cerebral injury. He died after forty-eight hours; and at the autopsy the following condition was found:

There were some old cicatrices in the brain, the result of old injury. They were found in the temporal and in the parietal lobe on the left side. They had nothing to do with his symptoms. On opening the thorax there was evidence of extensive sub-pleural hæmorrhage, more particularly on the right side. There were a few adhesions between the right lung and the pleura along its posterior border. The entire anterior and lateral portions were free from adhesions. Along the posterior part of the lower lobe of the right lung, the pleura was elevated and a large amount of blood was found beneath it. On cutting through this, there was a distinct laceration of the lung substance with an intact pleura, the lacerated portion of the lung and the lung tissue all around it, being infiltrated with blood. The laceration of the lung was irregular and about seven centimetres long. The hæmorrhage from the lung at this place had dissected up the pleura, extending to the root of the lung. Beneath the parietal pleura the hæmorrhage extended up to the apex of the cavity and into the posterior mediastinum and even to a slight extent, beneath the pleura of the left lung. Apart from the hæmorrhage into the lung, its tissues seemed absolutely intact, and on microscopic examination, no lesions were found in it. The case was apparently one of hæmorrhage and laceration of tissue in a perfectly normal lung. In the abdominal cavity there was an extensive hæmorrhage beneath the posterior peritoneum, which extended from the diaphragm into the pelvis. There was a great quantity of blood beneath the peritoneum. The source of the hæmorrhage is the right kidney. As you can see, there are a number of fractures in it. Most of these fractures are small and extend at short intervals across the kidney. The other portion of the kidney which was preserved for another purpose, had another very much larger and deeper fracture extending completely across it, and from this the most of the hæmorrhage probably came. The heart also presents interesting lesions. It is of the ordinary size, and looking at it from without, there appears to be no lesions, save a hæmorrhage, which is visible beneath the pericardium in the region of the left auricle. On examining the

interior of the heart we find in the right auricle, just above the valve, there is a distinct rupture of the endocardium. On examination you can see a torn, irregular slit of about one and one-half centimetres long, which extends for a short distance into the myocardium. This is clearly the source of the hæmorrhage which appears on the outside. A large thrombus was adherent over this fracture. A portion of this thrombus had washed away during life and there was an embolus filling up the artery of the left kidney, producing a complete infarction of this. The thorax was intact. There was no fracture of the ribs, nor of the vertebræ, nor of any of the bones of the body. There had been a little vomiting of blood shortly after he came in, and a good deal of blood was aspirated into the other lung. It is almost impossible to understand how such extensive injury as we have had here, could take place without any injury to the osseous structures of the thorax. The cases in which we have injury to the lungs are usually accompanied with fracture of the ribs. We have, however, a certain number of cases reported in which various injuries of the lung, pneumonia, and, in some cases, gangrene, have followed on severe blows of the chest, apparently without any injury to the thorax wall. A careful search here shows that there had been no previous aneurism of the pulmonary artery. It is probable that the hæmorrhage came from the ruptured lung. It could hardly be supposed that the hæmorrhage could have been the primary lesion and have produced the rupture of the lung, because at the place where the rupture has taken place, close beneath the surface of the pleura, the single arteries are not large enough to have produced by rupture, a tearing apart of the pulmonary tissue. The injury to the heart is fully as inexplicable as that of the lung. How was it possible to have this tear in the endocardium produced? The fracture of the kidney is not very uncommon, and we can very readily see how it may take place.

The next specimen is a heart which shows an interesting lesion which is due to diseases of the coronary arteries. This case comes from an individual who died at the age of eighty. He had previously enjoyed good health, but latterly had had several very severe attacks, one of which terminated in his death. The two layers of the pericardium were found tightly adherent over the apex of the left ventricle. The left ventricle, as you can see, is quite large. Its general cavity is enlarged, and the wall shows a decided increase in thickness. A great part of the enlargement of the ventricle is due to an almost perfectly circumscribed dilatation in the apex of the ventricle. This large cavity in the apex of the ventricle was almost filled with laminated clot and represents a perfectly typical aneurism. On cutting through its wall we find that the muscular substance of the heart at this point has entirely disappeared, and its place is taken by fibrous tissue. This extends over all the wall of the aneurism and into the surrounding cardiac tissue on all sides. In some other places, close beneath the endocardium, we also find some of this fibrous myocarditis. The arteries of the body generally, with the exception of a few, especially the renal artery of the left side, were comparatively intact. An interesting condition is seen in one of the coronary arteries, and to this, it is almost certain, that the aneurism is due. The artery which is affected in this case is the descending branch of the left coronary artery. Of the two coronary arteries, the left is probably the most often diseased, and the disease is generally more common in this descending branch than in any of the other branches.

The artery, as you see, is greatly thickened. There are a few patches of calcification here and there, and the lumen is almost entirely occluded. We now know that that condition of the myocardium, which we call fibrous myocarditis, is due directly to these lesions of the coronary arteries. There is an interference with the circulation of the heart over the area supplied by the diseased artery. A necrosis of the tissue is brought about. This necrotic tissue disappears and its place is taken by fibrous tissue. This gives way to the pressure of the blood within the heart and we have a cardiac aneurism.

MAINE MEDICAL ASSOCIATION.

FORTY-FIRST ANNUAL MEETING, PORTLAND, JUNE 14–16, 1893.

THE Association met, as usual for a number of years, in the Common Council Chamber, City Building, and was called to order, at 10 o'clock, A. M., Tuesday, June 14th, by the President, PROF. ALFRED MITCHELL, of Brunswick.

Prayer was offered by the REV. W. S. AYRES.

The Treasurer's report showed a cash balance of $1,198.66 — an excellent showing, considering the fact that during the past two years over $800 have been paid out in litigation over the Medical Registration Bill.

DR. G. A. PUDOR, of Portland, read a paper on

DERMAL MEDICATION.

The points emphasized were the use of fats in preference to mineral oils, as a basis for ointments when penetration of the medicament was desired, and the application of powders by a spoon instead of the usual pledget of cotton or the puff-ball.

DR. S. P. WARREN called attention to the uniformly good results following the use of icthyol ointment, one drachm to one ounce of lanoline or cosmoline, in facial erysipelas.

DR. J. L. HERSOM, of Portland, read a paper upon

DIABETES MELLITUS,

laying special stress upon nervous conditions as causes, and citing illustrative cases.

In the discussion, DR. S. C. GORDON, of Portland, took positive ground against an exclusive diet, except that he excluded potatoes absolutely, because of their tendency to produce flatulence. Saratoga chips were considered the least objectionable form of this vegetable. He did not believe in starving diabetic patients, and would forbid as food only such articles as they could not digest. Among drugs his choice was arseniate of iron.

DR. H. T. TWITCHELL, of Portland, mentioned syphilis as a cause of the disease.

The essayist, in closing the discussion, said, in response to a question, that in her experience the disease was most infrequent in children, but more rapidly fatal.

The following were elected to membership: Drs. H. J. Patterson, Portland; John Z. Shedd, North Conway; S. B. Overlock, Steuben; A. R. Smith,

Freeport; Ch. C. Larrabee, Gouldsboro; R. S. Gove, Biddeford; John S. Fogg, Biddeford; G. M. Elliot, Brunswick; J. D. Cochrane, Saco; F. I. Brown, South Portland; J. L. Fortier, Waterville.

Reports were received from the Boards of Visitors to the Portland School for Medical Instruction and the Maine Insane Hospital.

The latter stated that the present over-crowded condition of the hospital, from the failure of past legislatures to give the needed relief by necessary appropriation for a new hospital, was an imposition upon the institution, an outrage upon the patients and a disgrace to the State. The greatest capacity of the institution is, at the most, 550 patients; yet it is burdened with over 700. The report concludes: "We believe it to be the duty of every good citizen, and the especial duty of every member of this Society, to so cultivate public opinion that another legislature will not dare to longer leave this matter in such disreputable condition."

AFTERNOON SESSION.

New members were elected as follows: Drs. J. W. Conellan, Lewiston; F. L. Davis, Biddeford; J. A. Randall, Old Orchard; Wm. H. Bradford, Portland; W. D. Williamson, Gorham, N. H.; F. N. Whittier, Brunswick; George W. Weeks, Cornish; Owen P. Smith, Portland.

Delegates from other State societies were introduced and invited to participate in the discussions of the meeting. There were present Dr. Jas. F. Noyes, of Providence, R. I., and Dr. Hayden, of Connecticut.

The President, PROF. ALFRED MITCHELL, of Brunswick, then delivered the Annual Address, treating the question of

THE VALUE OF READING AS A SOURCE OF PROFESSIONAL INFORMATION.

The address was a most admirable presentation of the value, to the professional man, of the habit of daily systematic reading of standard authors in medicine and surgery, as an indispensable supplement to any course of clinical instruction or professional experience. Especially was this practice commended to those who, having passed to the middle and later years of professional life, look with almost envious and regretful eyes upon the broadened educational systems which are arranged for those who are to come after us. In no other way can we better adjust ourselves to the disadvantage which attends the former lack of special college training, laboratory instruction, the longer period of study, the graded system and the written examinations, or the inability, from whatever cause, to again undertake the curriculum of the student.

The speaker disclaimed any argument for mere bookishness, but urged that close familiarity obtained by studious association with the best professional literature was inseparable from the best equipment for professional work. It offered the best method of anticipating emergencies, and preserved us from the danger of lapsing from studious habits.

In accordance with the prescribed custom of the Association, reference was made to the state of the profession, and certain recommendations were offered. Most important was a suggestion that the Association should increase the value of its membership by some system of special requirements or professional examinations, and later this was referred to a special Committee for report at the next annual meeting; the Committee consisting of Drs. L. W. Pendleton, Chas. D. Smith, and Wm. Lawrence Dana, of Portland.

DR. I. T. DANA, of Portland, spoke upon

THE SEQUELÆ OF PNEUMONIA,

inclining to the view that all phthisis, as well as chronic pleuritis, was essentially tubercular, the dormant germ only awaiting the proper preparation of the soil by such acute disease to begin its development.

DR. A. K. P. MESERVE, of Portland, thought these cases did not originate by the pneumonia, but were the outcome of predisposition. In his experience, pneumonia, although a not uncommon disease, was not commonly followed by phthisis.

DR. C. G. ADAMS insisted upon the contagiousness of phthisis, and agreed with Dr. Dana. No communicable disease can arise except from contagion.

DR. O. St. C. O'BRIEN, of Rockport, Mass, thought if this theory were true it would do away with our accepted views upon heredity, as in the case of syphilis.

EVENING SESSION.

Dr. Chas. Mabry, of North Vassalboro, was elected to membership.

All of this session was devoted to the discussion of

APPENDICITIS,

and brought out an unusually large attendance.

A paper by DR. S. H. WEEKS presented the various indications for operation, and the technique.

DR. ALFRED KING detailed some contra-indications for operation, arising from the condition of the patient or his surroundings or the limitations of his attendant in the way of practical experience.

DR. A. K. P. MESERVE, presented a report of several cases treated without operation, resulting in complete restoration to health. The plan of treatment was that formerly regarded as the only one admissible, — perfect rest, liquid food, opiates, counter-irritation and catharsis induced by enema.

DR. S. C. GORDON in speaking upon "operation during the intervals," reiterated his well-known views upon the desirability of treating the peritonitis by salines, and when recovery has been secured to remove the cause and results of the inflammatory action. He could find no justification in always proceeding upon the assumption that to remove the cause is to cure the disease. In peritonitis from appendicitis this is conspicuously untrue, and by operation we only add new elements of danger, from more shock and sepsis, to the disease from which the patient is already suffering. He cited eight cases operated upon within the past year, during the intervals of attack, with uniformly perfect recovery.

DR. J. A. DONOVAN, of Lewiston, questioned the efficacy of Dr. Gordon's plan, and thought if adhered to in cases of suppurative appendicitis we should have many fatal cases.

DR. GORDON said he would always first try salines, even if pus did exist. If after thorough trial of this plan the elevation of temperature persisted, or it rose after once falling, he should operate; but when he could, he preferred operating during the intervals as giving the best results.

DR. N. M. MARSHALL thought he had lost patients by waiting for the action of salines.

DR. MESERVE, in reply to a query, said he had used salines not for depletive effects but simply to unload the bowels.

SECOND DAY. — MORNING SESSION.

DR. J. E. TUELL, of East Machias, read a paper reporting some surgical cases illustrating the

WORK REQUIRED OF THE COUNTRY DOCTOR.

It was valuable as showing what could be done, and what must be done by the man who cannot at any time summon the help he wishes.

DR. C. A. PEASLEE, of Wiscasset, made an interesting report of his visit as a delegate to the meeting of the Massachusetts Medical Society of 1893.

DR. CHAS. D. SMITH, of Portland, presented a paper upon

THE SIGNIFICANCE OF HÆMATURIA,

mainly clinical in character, and dealing with differential diagnosis. A point insisted upon was, that too much value should not be placed upon so-called typical cell elements in determining by microscopical examination the source of the hæmorrhage. It is often impossible to distinguish between deep urethral and vaginal cells, between the latter and superficial vesical cells. Transitional cells are often misleading, and the typical caudate cell from the renal pelvis depicted in books is rarely seen. The physician who sends urine for clinical examination, is supposed to desire information; for this reason he should give the examiner all facts bearing upon the case. Few do this, and wonder that diagnosis cannot be made from examination of urine alone.

DR. S. W. PENDLETON, of Portland, reported cases of hæmaturia from use of chloral hydrate, from malarial poisoning and another following *la grippe*. In the latter, coagula in the bladder were prevented by injection of pepsin in dilute hydrochloric acid.

DR. S. P. WARREN, of Portland, reported a case of hæmaturia which was checked by simple lavage of the bladder. A few weeks later death occurred, and the cause of hæmorrhage proved to be carcinoma of the bladder.

DR. J. A. DONOVAN, of Lewiston, read a paper on

SEPTIC POISONING: A FATAL CASE,

of interest to members, because it detailed the progress of the fatal illness of Dr. Orren A. Horr, of Lewiston, an ex-president of the Association and member of the State Board of Health. Dr. Horr died in one week after receiving a needle wound at an autopsy upon a man who died as a result of alcoholism. A curious commentary upon theory and practice was the fact that after wounding himself he gave the cut no further attention than to suck it for a moment, and then bind it up in a fragment of cloth torn from the sheet which had enveloped the body for forty-eight hours.

Drs. Geo. P. Emmons, of Lewiston, and Daniel Driscoll, of Centre Sidney, were elected to membership.

AFTERNOON SESSION.

DR. A. P. RICHMOND, of Dover, was introduced as a delegate from the New Hampshire Medical Society.

The annual election of officers resulted as follows: President, Dr. J. A. Donovan, Lewiston. First Vice-President, Dr. A. E. Besse, Waterville. Second Vice-President, Dr. O. H. Merrill, Corinna. Treasurer, Dr. Aug. S. Thayer, Portland. Corresponding Secretary, Dr. G. A. Wheeler, Castine. Board of Censors; Drs. C. A. Ring, Portland; M. B. Cobb, Biddeford; J. L. M. Willis, Eliot; F. J. Robinson, Fairfield; A. G. Young, Augusta. Committee on Publication: The Secretary, *ex-officio;* Drs. W. L. Dana, Portland; A. H. Burbank, Yarmouth; J. H. Neal, Sanford; W. T. Goodale, Saco. Business Committee: Drs. J. F. Thompson and W. B. Moulton, Portland.

DR. F. H. GERRISH, of Portland, presented a paper upon

THE TREATMENT OF PROSTATIC HYPERTROPHY,

accompanied by an improved device for permanent drainage after suprapubic cystostomy. The paper was a plea for "the establishment of a permanent fistula in the bladder above the pubes, — suprapubic cystotomy," in place of the more serious operation of prostatectomy. The advantages claimed were: "It puts the inflamed organ at rest, gives a ready opportunity for cleansing and treating the diseased mucosa, frees the patient from pain, and removes the danger of extension of the inflammation to the kidneys."

The apparatus consists of a metal plate, with rubber-ring shield and a globular chamber (fitting over the aperture), from the lower portion of which the urine, as fast as it exudes, is conducted away by a flexible tube to a convenient receptacle. The plate is secured by broad body bands.

DR. ALFRED KING thought that sepsis too frequently followed the removal of the prostate. He had found an advantage in the use of a glass syphon-tube after the operation described by Dr. Gerrish.

DR. S. C. GORDON said he had no doubt the procedure of opening the bladder to relieve prostatic trouble would be rapidly adopted. For stone, the suprapubic operation was the coming one. In an obstinate cystitis he would operate early.

DR. B. B FOSTER, of Portland, suggested the advisability under certain circumstances of making two operations instead of completing the opening at one sitting. His plan was first to make incision down to the bladder, secure union of the vesical to the abdominal wall, and enter the bladder after an interval of several days.

DR. GERRISH thought the condition of most patients demanded immediate relief, and had seen no ill effects from completing the operation at once.

DR. ADDISON S. THAYER, of Portland, called the attention of the members to the advantages of hypodermatic injections of saline solution, over transfusion of blood, in cases of hæmorrhage.

DR. ALFRED KING, necrologist, reported the deaths during the year of Dr. Henry M. Harlow, for many years Superintendent of the Maine Insane Hospital at Augusta; Dr. D. N. Skinner, of Auburn; Dr. S. A. Nash, of North Berwick; Dr. C. E. Webster, of Portland; and Dr. Orren A. Horr, of Lewiston; and presented for publication biographical notices of each.

EVENING SESSION.

This was devoted to the Annual Oration by DR. SAMUEL J. BASSFORD, of Biddeford, upon the subject of

AIDS TO SUCCESS IN MEDICINE.

These were considered under the several topics: The influence exerted by observation of the success or failure of others, the assistance of intelligent and honorable consultations, the stimulus of association with medical societies, the advantages to be gained by familiarity with carefully selected medical literature.

Following the oration, the members of the Association, the visiting delegates and their ladies, were entertained at a reception tendered by the physicians of Portland.

THIRD DAY. — CLOSING SESSION.

The Association met at 10 o'clock, A. M., and was called to order by Dr. J. L. Horr, of Westbrook, first Vice-President.

As usual, the closing hours were devoted to the sweeping up of odds and ends of unfinished business.

The Board of Censors made its final report making the assignments for the year, and fixing the date and place of the next annual meeting, as follows:

Orator: Dr. H. H. Smith, Machias. Visitors to Maine Insane Hospital: Drs. C. A. Ring, Portland; W. T. Goodale, Saco; C. D. Hill, Bethel. Visitors to Portland School for Medical Instruction: Drs. M. C. Wedgwood, Lewiston; G. M. Elliott, Brunswick. Visitor to Medical School of Maine (two years): Dr. A. K. P. Meserve, Portland. Necrologist: Dr. Alfred King, Portland.

The next annual meeting will be held in Portland on the second Wednesday, Thursday and Friday in June, 1894.

Recent Literature.

Third Biennial Report of Vital Statistics of Minnesota, for the years 1890, 1891. Minneapolis, 1893.

Very few new States have advanced so much in the matter of registration of vital statistics in the course of five years as the State of Minnesota. Much of the creditable work in this direction is due to the energetic and persevering registrar of vital statistics, Dr. C. N. Hewitt.

From this report it appears that the number of living births in the State in the census year 1890 was 32,202; and the deaths in the same year were 14,492, in a population of 1,301,826. These figures indicate a birth-rate of 24.76 per 1,000 and a death-rate of 11.13 per 1,000, the birth-rate being more than twice as great as the death-rate.

The statistics for five years were as follows:

	Births.	*Deaths.*
1887	28.615	13.010
1888	33.191	15.018
1889	31.587	14.807
1890	32.202	14.492
1891	34.107	14.714

The deaths from infectious diseases in 1891 were as follows: measles 136, scarlet fever 205, whooping-cough 224, diphtheria 720, typhoid fever 534, influenza 204, diarrhœa of children 1,126, tuberculosis of the lungs 1,268, pneumonia 897.

Traitement chirurgical des Affections inflammatoires et néoplastiques de l'Utérus et de ses Annexes — Hystérectomie abdominale et vaginale — La Castration totale par le Vagin. Par E. Doyen (de Reims). Paris, 1893.

The object of this brochure of one hundred and twenty pages is evidently to bring more prominently than heretofore before the profession the author's views of and experiences in the operations of vaginal hysterectomy and complete castration by the vagina, not only in the treatment of neoplasms of the uterus and ovaries, but also of inflammatory affections of these organs. It is his rule when both appendages are diseased to remove the uterus and tubes and ovaries by the vagina. This he has done eighty-nine times where other surgeons would have performed cœliotomies.

For neoplasms he practises both abdominal and vaginal hysterectomy, and uses clamps for the broad ligaments in both operations. Some very good drawings illustrate both methods. The book is an interesting one, though we imagine few surgeons would agree with the author in his views.

Ventilation and Heating. By John S. Billings, A.M., M.D., LL.D., etc. Pp. 500. New York: *The Engineering Record.* 1893.

Dr. Billings's new work contains much of the substance of his former excellent treatise of 1884, corrected and amplified and brought up to date. It is, however, substantially a new work, with numerous illustrations of recent practice. It will be found especially valuable as a hand-book and work of reference for boards of health, physicians, engineers, school authorities, and all persons who are or should be interested in this important subject. Technical expressions have been avoided as far as possible, and only simple formulas employed.

Of the twenty chapters contained in the work the following are some of the topics: The composition and properties of the atmosphere; carbonic acid; moisture and its relations to ventilation; quantity of air necessary for ventilation; the forces concerned in ventilation; examination and testing of ventilation (this is an especially practical chapter, and details the newer and more convenient methods in use for examining the quality of the air of inhabited apartments); methods of heating; sources of air-supply; foul-air shafts; ventilation of mines; ventilation of hospitals, public buildings, theatres, churches, schools, dwellings, tunnels, ships, prisons, etc.

The chapters on hospitals, schools and public buildings are especially useful and instructive, and like all parts of the book are fully illustrated.

On Snake-Poison: Its Action and its Antidote. By A. Mueller, M.D. Sydney: L. Bruck. 1893.

This book represents the study and experience of an Australian practitioner, extending over thirty-five years. The author likewise reviews the work of others on this subject. He holds that all of the snake-poisons exert their action by "depressing and more or less suspending the function of the motor nerve-centres throughout the body," and further that strychine is the antidote above all others, but it must be administered subcutaneously and in sufficient quantity. The writer gives an outline of fifty cases in which it was used in Australia, and notes of eight cases where it was used by R. P. Banergie, B.A., India. The Indian cases required more strychine than the Australian. Two of the former were given as much as three grains of strychine within a few days. The writer condemns the use of alcohol.

The Structures in the Mesosalpinx: Their Normal and Pathological Anatomy. By J. W. Ballantyne, M.D., and J. D. Williams, M.D. Edinburgh, 1893.

This little pamphlet contains the results of the examination of the mesosalpinx and the structures lying in it from two hundred and twenty broad ligaments. It comprises both the gross anatomy and pathology, and the histology, and is a valuable contribution to our literature of the subject.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, JULY 13, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Edtor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

EHRLICH'S URINE TEST FOR TYPHOID FEVER.

GEORGE M. BERINGER[1] has made a series of experiments to discover to what extent various substances are likely to interfere in this reaction; especially those which from internal or external administration are apt to appear in the urine, or are known to be normal or abnormal constituents. In the experiments one-per-cent. aqueous solutions were used where the solubility would permit, otherwise saturated solutions.

In applying the test, the author used the contact method, and the following modification recommended by Dr. Simon of the Johns Hopkins Hospital: "Solution 1, a saturated solution of sulphanilic acid in five-per-cent. hydrochloric acid; solution 2, a five-per-cent. solution of sodium nitrite; forty cubic centimetres of solution 1 is mixed with one cubic centimetre of solution 2, and an equal amount of urine is added and mixed. One cubic centimetre of ammonia is now carefully run down the side of the test-tube; at the junction of the two liquids there will be observed a ring of the characteristic color varying from an eosine rose to a deep garnet red."

Neutral liquids, such as alcohol, methyl alcohol, acetone, aldehyde, paraldehyde, ether, chloroform and turpentine were found to have no effect. The mineral acids and their salts, and organic acids such as lactic, oxalic, acetic, tartaric and citric acid and their salts, also gave no reaction. Salicylates and benzoates gave an orange-colored reaction, the line having a distinct green tint.

The following alkaloids and neutral principles gave also no reaction: quinine, strychnine, cinchonine, cinchonidine, morphine, codeine, cocaine, atropine, caffeine, salicin, piperine, propylamine and phenacetine.

Upon adding a few drops of a one-per-cent. antipyrine solution to the mixed reagents, there is produced at once the well-known green coloration produced by this substance with nitrites. The supernatant ammonia assumes a yellow color, separated sharply from the green solution by a brilliant red line.

Urea, uric acid, glucose and saccharose were all found to have no effect. Albumin gave an orange to a red line, depending on the amount present; two drops of a one-per-cent. solution gave a reddish orange reaction, which became a distinct red on increasing the amount of albumin. While pepsine gave but a green line, the addition of a very small quantity of peptone resulted in the production of a distinctly pale red line. The most minute quantities of phenol and creasote gave a dark red at once, and a single drop of a one-per-cent. phenol solution gave a reaction identical with that obtained from typhoid urine. Sulpho-carbolates of sodium and zinc gave a pale eosine red line, gradually darkening. Beta-naphthol gave a brilliant magenta color and resorcin a dark reddish-brown at once. Thymol and eugenol likewise produced the red line. Gallic acid and pyrogallol produce a dark red, the entire layer of ammonia quickly assuming the same color. With tannic acid the reaction is peculiar. The mixed test solutions assume an orange coloration and the ammonia becomes red, a green-colored line sharply marking the separation.

The author, in accord with others, questions the claims that have been put forth for the value of this test. While the absence of the reaction may indicate the absence of typhoid, the presence of the reaction does not warrant the diagnosis of typhoid unless supported by other evidence, as many of the substances producing the reaction, notably phenol and peptone, may be present in the urine from other causes.

[1] American Journal of Ph armacy, 1892, page 559.

THE CERTIFICATION OF REGISTERING THERMOMETERS.

THE Thermometric Bureau of the Observatory of Yale University has continued during the last year (1892–93) its comparisons of clinical thermometers and the issuance of certificates. According to the report of the Bureau, just received, only a small percentage of the instruments sold are sent for certification. Those sent for this purpose by the manufacturers are probably carefully selected, and, therefore, more reliable than the average of those sold without certification. Nevertheless, twenty-five, fifty and even seventy-five per cent. of those thus sent are sometimes rejected, and this not without these rejected instruments receiving double the care and time required by the large majority of those to which certificates are accorded.

The cost of certification adds a large percentage to the manufacturers' prices, hence, when he has succeeded in continuously producing, for a season, instruments with few and uniform corrections, the manufacturer is tempted to point to these conditions as justifying his customers in accepting his instruments without other certification than his own. The Bureau has noticed, however, in cases of this sort which have

come under its observation that apparently the workman, when he no longer has occasion to expect his work to be traversed by a disinterested authority, soon relaxes his efforts at an accuracy which is hardly yet fully appreciated by the ultimate consumer, and his instruments, when they come to it from his customers, are not quite up to the standard maintained when he was continuously, or at short intervals submitting them to such tests. Possibly, the Bureau suggests, the workman is not making due allowance for his changing standards.

The Bureau concludes its report by again calling attention to some points in the construction of registering clinical thermometers, frequently overlooked by the makers and users of these instruments, for the details of which we refer those interested in this matter — one of some little importance to medical men — to the report itself.

THE UNITED STATES MAILS A PARTNER OF EVIL QUACKS.

A VALUED correspondent writes us the following in regard to the above subject:

"I received a pamphlet the other day which, under the pretext of showing the recipient how he could be cured of the effects of self-abuse (by applying to some central office for remedies), gave an illustrated list of the effects of such practices, which included every physiological function or condition from respiration up and down.

"Believing that the circulation of such matter is far more demoralizing than a postal distribution of lottery tickets, I enclosed the pamphlet to the Postmaster-General and asked if the Post-Office Department could not put a stop to it.

"I received the within courteous reply a few days later. It would seem as though the leading medical journals and medical societies might unite in pressing the demands of the Department for legislation upon Congress, and strengthen its hand. Do you not feel inclined to take up the work in the *Medical and Surgical Journal*, asking your contemporaries to join you?"

DEAR SIR: — I have the honor to acknowledge the receipt of your letter, submitting a medical pamphlet received by you through the mails.

The Department has frequently submitted such pamphlets to United States attorneys for prosecution, but has been unable to obtain any action whatever, or conviction of the parties mailing such publications. The attention of past Congresses has also been called to the matter, and bills introduced with the view of enabling the Postmaster-General to refuse the admission of such matter to the mails; but as yet they have failed to become laws. It is hoped that some action will be taken at the next session of Congress, which will relieve the mails of these obnoxious pamphlets. Very respectfully,

FRANK H. JONES, *First Assistant Postmaster-General.*

The JOURNAL shares the sentiments expressed by this correspondent, and would be glad at any time to aid in strengthening the hands of the Post-Office Department in its efforts to rid the mails of such a pestilential nuisance. We fear, however, that with the silver and tariff questions to the front there is small chance in the next Congress for the mere moralities.

MEDICAL NOTES.

VACANCIES IN THE ARMY MEDICAL CORPS. — There are at present five vacancies in the United States Army Medical Corps, to be filled at the next examination.

A NEW BIENNIAL PRIZE. — M. Frédéric Chevallier has bequeathed to the French Academy of Medicine a sum which will afford a prize of six thousand francs, to be given every two years to the author of the best work on phthisis and its treatment.

CHOLERA. — Reports from Cairo show that the cholera, which appeared in Mecca June 9th, is increasing, there being over 200 deaths daily. In Southern France there have been 704 deaths since May, 138 deaths having occurred in Marseilles in the last four weeks.

INFLUENZA.—The New York State Board of Health reports a yielding in the epidemic of influenza, which caused during the last few months an increase of about 500 deaths a month over the average.

THE END OF MEDICAL GRADUATES. — The following from the *Medical Age* has been extensively circulated in the medical journals, and, as might be expected, has been used as a text by British journals to instruct their readers in the condition of things over here. "The writer traced after graduation 100 of his friends, especially in the first five years, and found that 75 had to resort to other employment; 23 received a salary either additional to practice or separate therefrom; 15 became proprietors of drug stores; 3 were insurance agents; 4 'loaned money'; 1 sold real estate; 1 was an agent for drugs; 1 an agent for books; 1 dealt in patent medicines; 2 were farmers; 1 a manufacturer; 2 gave massage treatment; 1 sawed wood, and subsequently suicided; 12 gave up in disgust, and 1 never tried to practice at all — 29 graduates only in 100 devoted themselves to medicine, of whom 11 associated themselves with other practitioners, and in some cases succeeded to their practice."

MEDICAL GALLANTRY. — The following shows the warmth of style of medical commencement parts prevailing farther South. No longer can the medical student be called lacking in grace and courtesy. "To the grand old city of Baltimore we must bid adieu, and to her daughters fair, for none more fair than they. (Yes, they are fair and, 'fairer than that word,' of wondrous virtues.) Sometimes 'from their eyes we do receive fair speechless message.' With us these gentle people's wishes are commands and their words law, for 'ingenious Fancy, never better pleased than when employed to accommodate the fair;' and they give us for our pains a 'world of sighs.' 'The wide world is not ignorant of their worth, for the four winds blow in, from every coast, renowned suitors,' who for many years have considered the Monumental City as the home of beautiful women. To all these we lingeringly say good-bye."

THE HARVEY TERCENTENARY. — On June 21st, the Master and Fellows of Gonville and Caius College, Cambridge, commemorated the tercentenary of William Harvey's admission to the college, by a dinner to about 130 leading physicians and scientists. A number of interesting relics and early works of Harvey were shown. The guests included the Harveian orators of the Royal College of Physicians. Speeches were made by the President of the College, Rev. B. H. Drury, M.A., Sir James Paget, Dr. Clifford Allbutt, Sir Andrew Clark, Professor Gairdner and Mr. Huxley.

A PASTEUR INSTITUTE IN THE HIMALAYAS. — A Pasteur Institute is to be established in the Punjab Himalayas for the care and study of hydrophobia. Its benefits are to be open to the whole of India, by arrangements to convey patients free of charge, when necessary, from any part of India to the Institute.

OBSTETRICAL HABITS.— Dr. Scheel, former head of the Maternity Hospital at Nancy, states that in his observation of cases of repeated childbirth, the interval between deliveries becomes shorter on the average as the number of deliveries is greater. In any one woman the same presentation occurs in 91.7 per cent. of all deliveries. The same presentation and position of the child at every delivery of a woman occurred in 51.6 per cent. of the cases. The ratio of occiput left anterior in all of a woman's deliveries, to a position of occiput right posterior was 5.07 to 1; the ratio of similar positions in all cases observed was only 2.1 to 1.

A TRADE-PRESS CONGRESS. — Among the innumerable congresses to be held in Chicago during the World's Fair, there is announced one of the trade papers. Among the questions to be discussed are the following: "What should be our relation to advertising agents?" and "What is the result of our experiences with sample copies?"

EXCISION OF AN HYDATID CYST OF THE LUNG. — Delagénière reports the following case: A woman seized with intense pain in the left side of the chest, was found to have considerable effusion in the left pleura. Puncture gave issue to a greenish puriform liquid. On incision, the lung was found adherent to the thoracic wall; the incision was carried several centimetres through lardaceous tissue bounding a cavity; this was freely opened and drained; on the following days fragments of hydatid cyst were discharged. A solution of sublimate was injected several times, but there being no improvement in the patient's condition, a large opening in the chest wall was made, twelve centimetres of the seventh and eighth ribs, and ten centimetres of the sixth, being resected; the cyst, which formed a cavity of the size of a man's fist, was then easily stripped away. The result was a complete cure.

"LONGINGS" OF PREGNANT WOMEN. — From a study of over three hundred cases, Giles, of the London Obstetrical Society, divides the healthy "longings" of pregnancy into three classes: those due to desire for something to check the sense of nausea, those which express the physiological desire for certain kinds of food, and those due in many cases to an auto-suggestion prompted by popular belief. The frequency of longing decreases as the number of conceptions increases.

A NEW SOURCE FOR CATGUT. — Dr. Dario Vigezzi, in *La Médecine Moderne*, describes a new source for animal ligatures. He proposes to use the many long tendons of dogs' tails as his source. After cutting off the tails high up and dissecting the tendons, he subjects them to a carbolic or corrosive preparation for forty-eight hours. He has used them for sutures in enterorrhaphy and on the stomach with success. Its advantages are said to be greater strength and slower absorption than are found in catgut.

NEW ENGLAND.

PUBLIC BATHS. — During the last month, 134,686 men and 25,085 women made use of the public baths of Boston, a total of 159,771, as compared with 248,847 in June, 1892. The decrease was owing to the cooler weather this year. The following are the numbers at the different houses:

Males. — At Craigie Bridge, 21,622; Malden bridge, 8,443; Dover Street bridge, 11,434; L Street, 21,334; Charles River bridge, 19,367; Maverick Street, 7,245; Mt. Washington Avenue, 8,851; Border Street, 8,467; West Boston, 19,670; Commercial Point, 1,015.

Females. — Commercial Point, 1,896; Chelsea bridge, 1,155; Malden bridge, 1,237; Dover Street, 2,522; M Street, 4,560; Border Street, 4,594; Charles River bridge, 9,121.

MASSACHUSETTS GENERAL HOSPITAL. — By the will of the late Abbot Lawrence, the Massachusetts General Hospital receives a bequest of ten thousand dollars for the establishment of free beds.

A CASE OF SMALL-POX AT NEW HAVEN. — A case of small-pox is reported from New Haven, Conn., having arrived on a schooner from Brunswick, Ga.

NEW YORK.

IMPROVED CROTON WATER. — It is gratifying to learn from the reports of the chemists of the Board of Health that the Croton Water is now in a purer condition than has been the case for many years. Nitrates have entirely disappeared from it, and it contains only trifling impurities which are the result of decayed vegetable matter. These, moreover, are constantly diminishing. This satisfactory result is said to be due in part to the heavy rainfall during the past four months, and in part to the removal of long-standing nuisances from the water-sheds of the Croton.

CABLE CAR ACCIDENTS. — Since the cable cars have been running on Broadway two persons have been killed by them. The first was a lad nine or ten years old, who was run over. The second was a man by the name of Stapleton, who was knocked down by a cable car on June 30th. He was taken in an ambulance to the New York Hospital, where he was pronounced to be suffering from a *slight contusion of the*

knee, and discharged. The next day, however, he was found dead in his room, and the Coroner's jury which investigated the case rendered a verdict, founded on the results of an autopsy made by Deputy Coroner Weston, that the deceased came to his death by being crushed between two Broadway cars, which resulted in the fracture of five ribs and of one of the cervical vertebræ.

Electric Car Accidents. — Since the introduction of the trolley system in the street railways of Brooklyn there have been a very large number of accidents (many of them fatal), and so numerous have these become of late that the Board of Aldermen have felt called upon to establish a set of strict regulations for the running of the cars.

Jumping from Brooklyn Bridge. — On July 3d a young Irishman by the name of Dennis McCarty, while in a state of intoxication, leaped from the Brooklyn bridge. He remained under water for a considerable time, and when he arose to the surface was picked up by a passing tug-boat. He was taken to Chambers Street Hospital, where it was found that he had been seriously injured. He appears to have struck the water on his right side, which was severely contused, while two of the ribs were broken. Within a day or two pleurisy developed, and it was feared that pneumonia would also result. McCarty is the fourteenth person that has jumped from the bridge.

Mortality. — Owing, no doubt, to the comparatively cool weather, the health of the city continues to be remarkably good. During the week ending July 1st the number of deaths reported was 702, which is no less than 178 below the average for the corresponding week of the past five years. During the week the number of births reported was 1,010, an excess of births over deaths of 317. There were only two cases and two deaths of typhus fever during the week, the smallest number since the outbreak of typhus commenced at the beginning of the winter. Since the 30th of November there have been reported in all 489 cases, with 208 deaths, a mortality of 42.5 per cent.

Miscellany.

MEDICAL WITNESSES AND EXPERT TESTIMONY.

Judge Hammond, of the Superior Court, at the twenty-fifth anniversary of the Cambridge Society for Medical Improvement held at the Hotel Vendome, Boston, Monday evening, June 26th, made the following pointed remarks: "The medical expert has been a poor representative of the medical profession, because of his inability to serve as a good witness. A physician's knowledge of man is very different from the knowledge of a layman; and it is very difficult to present this knowledge so that a layman can understand and appreciate it. The physician is often hampered by the stupid questions of the lawyer who frequently puts on so many conditions that it may be impossible to answer many of his questions, and no attempt should be made to do so in the form in which they are presented. The physician is often biased at the start from the fact he is retained by one or the other party. This is not a right condition of things. The physician should look the matter over and then state to the jury what, in his opinion, are important and what are not important facts in the case, without any prejudice whatever, and in as simple language as possible, so as to aid the jury as much as he can in forming their decision, much in the same manner as the judge in his address to the jury. In order that the best results should be obtained in this direction, men of special ability should be selected by the profession to act as experts, and appointed by the bar to examine and give evidence in cases requiring medical expert testimony. Action on the part of medical societies to favor and bring forth some such class of medical experts would be of great service not only to the medical but also to the legal profession."

AN EPIDEMIC OF TYPHOID FEVER.

An epidemic of typhoid fever broke out at Ironwood, Mich., a town of about 12,000 inhabitants, May 13th, and has steadily increased. There are now about 400 cases, and an average of eight deaths daily, with no signs of cessation.

The Secretary of the State Board of Health reports that on examination he found the reservoirs of the general pumping-station overflowed and the filter-pipes clogged. Water-soaked logs and the privy buildings of the engineer's family were floating in the immediate vicinity and the collected excreta had been largely washed away. Owing to the clogging of the filter-pipes a break had been made in the reservoir and the contaminated water allowed to enter the distributing reservoir, to be pumped into general circulation. This occurred between the 10th and 15th of May — the first case of typhoid fever being reported May 13th. The contamination of the water-supply was still allowed to go on till the middle of June.

A sample of the contaminating water, contained pathogenic micro-organisms which caused the death of white rats into which they had been injected, the rats then having inflamed intestines and enlarged spleens.

On cleaning the stand-pipe several tons of filth, with dead fish and crabs were found.

Although this outbreak seems to have been caused by the general water-supply, later reports show that the wells throughout the city have become contaminated and a source of danger, and that water is being brought from Milwaukee. The armories and schoolhouses have been turned into hospitals.

HYSTERICAL HÆMATEMESIS.

The not infrequent cases of hysterical hæmatemesis have been made the subject of study by M. Josserand.[1] These cases, he says, though at first somewhat puz-

[1] Lyon Medical, No. 25, 1893.

zling, have so distinct a characteristic, that the examination of the blood may be almost as pathognomonic as the expectoration in pneumonia. The more regular and early morning occurrence is of some value in the diagnosis; but the chief test is the examination of the expectoration itself. The liquid is less red than pure blood, it is more viscous, being diluted with saliva. This is especially seen when a single drop is placed on a piece of linen. The stain is not so deep and does not spread so rapidly. The blood does not, as a rule, coagulate, and is not frothy. On standing in a wine-glass it deposits three layers: An upper, red, colored by dissolved hæmoglobins; a middle, containing red globules, and a lower, which is largely made up of epithelial cells. The saliva acts as a solvent for the hæmoglobin and is present in about ten or twelve parts to one of blood. The source of the blood, chiefly from the stomach or œsophagus, may be the pharynx or base of the tongue.

The phenomenon is found most often in cases of hysteria associated with dysmenorrhœa.

LYMPHOMA OF THE CONJUNCTIVA.

M. GOLDZIEHEI[1] has reported to the Royal Society of Physicians at Buda Pesth, a case of lymphoma of the conjunctiva. It began as an intense conjunctivitis accompanied by great development of the follicles and the appearance of lymphomata in the neck. The conjunctiva of both lids was much swollen and hyperæmic. The cul-de-sac formed enormous projecting pads, œdematous and congested, and scattered with many follicular tumors and vegetations. There were also many smaller gelatinous follicles resembling highly-developed granulations. The nodules varied from the size of a lentil to that of a bean. There were no ulcerations. In the neck, on the same side, were masses of glands as large as a child's fist.

All these conditions distinguish lymphoma of the conjunctiva from trachoma, as does the slower progress of the latter. From tuberculosis it was distinguished by absence of ulceration and curability.

In this case surgical removal, with constitutional treatment, was successful.

HÆMOGLOBINURIA COMPLICATING PNEUMONIA.

DR. W. G. NASH, in the *Lancet* of June 24th, reports an interesting case of acute pneumonia accompanied by hæmoglobinuria.

A girl of sixteen, with pneumonia of the left lower lobe, on the third day passed urine of a dark yellow color, specific gravity 1,030, but with no albumen. The following day the water was distinctly bloody in color and scanty. Two days later it still being dark like porter, it was examined, as being thought indicative of more than a nephritis. Under the microscope no blood-cells were found, but numerous small red granules, a few casts and débris. The guiacum test gave a blue color. The crisis in the pneumonia occurred on the eighth day; and a few days later, the urine became normal.

[1] Le Bulletin Médical, No. 49, 1893.

There were several interesting features in the case: (1) On the fourth day only was there any expectoration; (2) the very marked anæmia and breathlessness, the latter being quite out of proportion to the amount of lung affected, and evidently due to the great blood destruction; (3) the very distressing aching all over the body, especially affecting the loins, which lasted several days and was no doubt due to the blood change; and (4) the fact that on the fifth day the temperature in the axilla was 98.2°, and in the mouth 103°, this being apparently due to the contraction of the peripheral vessels.

CRYPTOPHTHALMUS.

FUCHS[1] recently showed to the Royal Society of Physicians at Vienna, a case of cryptophthalmus. The child, who was born of healthy parents, had no eyelids, but in their place, a continuous covering of skin on which were no lashes or eyebrows. Careful examination detected no tarsal cartilages. There were, however, some muscular fibres corresponding to the orbicularis, since a strong light caused the child to wrinkle the skin over the eye. The child was also web-fingered.

This is the fourth case thus far recorded.

HÆMORRHAGE IN THE CENTRUM OVALE.

AFFECTIONS of the centrum ovale have few constant or characteristic symptoms. Many cases are quite latent; the signs of others bear reference to the cortex or adjacent basil portions of the brain. In the case of hæmorrhage, the indirect symptoms give additional difficulty to the diagnosis. Bamberger has had the observation of four cases, all similar in character, in two of which the autopsy confirmed the ante-mortem diagnosis. The other two were not examined after death. The cases were characterized by deep coma, markedly flushed faces, hæmiplegia, epileptic convulsions in the paralyzed side, and gradual cessation of life.

The Jacksonian epilepsy distinguished these hæmorrhages from all others. The differential diagnosis lay between cortical hæmorrhage and hæmorrhagic pachymeningitis. The diagnosis of hæmorrhage in the centrum ovale has a bearing on the prognosis, and especially on the care of the case as regards trephining.

PARENCHYMATOUS INJECTIONS IN THE TONSIL.

VON ZIEMSSEN[2] reports that he has found the injection of carbolic acid into the parenchyma of the tonsil, useful not only in the treatment of scarlatinal diphtheria as recommended by Traube and Heubner, but also in ordinary simple tonsillitis whether follicular or suppurative. He bases his treatment on the belief that nearly all cases of tonsillar angina are of an infectious nature, inasmuch as the presence of streptococci, staphylococci and diplococci are constantly found in the crypts of the tonsil. An abrasion of the epi-

[1] Deutsche Medizinal Zeitung, No. 50, 1893.
[2] Beilage Zum. Centralblatt für klin. Medical, 1893, 25.

thelium is all that is needed to give them pathogenic entrance.

In catarrhal tonsillitis his treatment consists in the injection of one-half a cubic centimetre of a two-per-cent. solution of carbolic acid into the substance of the tonsil. The pain and difficult deglutition are at once lessened and the temperature falls to normal or below. As a rule, one injection is sufficient. Sahli of Bern and Heubner concur in the statement of Von Zeimssen as to the value of this treatment.

THE BACTERIOLOGY OF SUPPURATIVE MENINGITIS.[1]

ZORKENDORFER reports a case in support of the theory advanced by Fraenkel and others of the etiological relation of the pneumococcus to purulent meningitis. Autopsy in this case, which was one of purulent meningitis uncomplicated by any pneumonia, showed greenish-yellow pus in the sphenoidal cavities, and a suppurative pharyngitis. The pus taken from the meninges and from the sphenoidal cells was found microscopically to contain pneumococci. Cultures and inoculation also showed their presence in the meninges, in pure cultures and elsewhere with other cocci. Section of the brain showed the diplococci only in the purulent meninges — in no instance in the brain substance or the blood-vessels.

INFANTILE DIABETES.

IN the various text-books on children's diseases very little is said about diabetes except that it is exceedingly rare in children. The difficulty of obtaining the urine of very young children for examination, may be one reason for the failure of early diagnosis in such cases as do occur, and the marasmus is referred to other causes. In spite of its rarity the disease is not so infrequent as might be supposed; and Duflocq and Dauchez's report[2] of such cases occurring in very young children is not without interest. The patient, a boy of eighteen months, had always been well, save for a tendency to constipation. For a fortnight previous to observation, he had had great thirst, drinking two and a half litres of sterilized milk daily. Micturition was frequent. He was peevish, and groaned in his sleep. The loss of weight and fretfulness was attributed to dentition. The temperature was 37.8° C. The pulse was feeble, and there was some cyanosis. During the night the child failed much, became cyanotic, moaned, and vomited several times; temperature 36.5° C. From this condition he rapidly passed to one of coma, with quick respiration, dilated and immovable pupils, and died during the day. From examination of dried napkins a considerable percentage of sugar was found.

There was heredity in the case, a great uncle having died of diabetes.

In examining this and other cases the following conclusions were reached: Among the earliest symptoms is the change in disposition — a wearied querulousness, unaccountable sobbing in the midst of play. Constipation appeared not infrequently. The increased urination is often ascribed to the ingestion of much milk, which is mistaken for a hearty appetite. The occurrence of dentition is looked upon as causing the loss of sleep and wasting of flesh. The course of the disease is rapid; and a sudden unexpected coma may first call serious attention to the case.

[1] Prager med. Woch., 1893, No. 18.
[2] Revue de Médecine, 1893, No. 6.

THERAPEUTIC NOTES.

A CASE OF ANTIPYRINE HABIT. — A case of antipyrine habit is reported, in which the patient, a nervous woman of twenty-three, had used the drug for headache. For two years she had taken nearly eight grammes a day. The symptoms were those of great prostration, muscular weakness and insomnia. In the gradual reduction of the dose caffeine was used to meet the functional disturbance. A cure was finally accomplished.

SALICYLIC ACID FOR TAPE-WORM. — Ozegovski recommends the following treatment for tape-worm. The patient takes no mid-day or evening meal, and at bedtime is given 30 grammes of castor-oil. The following morning at 7 o'clock a second dose of 15 grammes of castor-oil is given. An hour later one gramme of salicylic acid is given, to be repeated every hour to four doses. If the worm is not expelled by this time a third dose of castor-oil is indicated.[1]

DIGITAL COMPRESSION IN THE VOMITING OF ANÆSTHESIA. — Dr. Bernard Joos [2] describes a method for the control of the hiccough and vomiting during anæsthesia, which he has found successful for several years. It consists in digital compression of the phrenic and vagus nerve against the sternal end of the clavicle. His method is as follows: As soon as singultus or vomiting begins, the etherizer presses the last phalanx of the left thumb firmly over the sternal end of the clavicle, the body of the thumb being parallel with the clavicle and the hand resting on the chest. The pressure is made with the radial side of the thumb. The vomiting stops at once, as a rule. If needed, or more convenient, the pressure may be made on the right side. Pressure is continued for a few moments to prevent a return of the vomiting. He recommends the trial of this method in cases of sea-sickness.

[1] Münchener med. Woch., No. 25, 1893.
[2] Korrespondenzbl. f. Schweizer Aerzte 3, 1893.

METEOROLOGICAL RECORD,

For the week ending July 1, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r.*		Rainfall in Inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..25	29.95	58	63	54	94	97	96	N.	E.	3	10	O.	O.	
M..26	29 85	58	61	54	94	94	94	E.	E.	8	3	O.	C.	
T..27	30.00	58	62	55	84	88	86	N.E.	E.	7	16	O.	O.	
W..28	30.18	58	62	54	88	89	88	N.E.	E.	11	3	O.	C.	
T..29	30.16	62	72	53	76	87	82	S.W.	S.	3	13	C.	C.	
F..30	30.10	64	73	56	89	85	87	S.W.	S.W.	6	8	O.	F.	
S.. 1	30.04	66	77	56	87	76	82	S.W.	S.W.		11	C.	C.	
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 1, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	702	340	23.80	11.34	10.50	.84	7.42
Chicago	1,438,000	429	184	18.63	8.74	7.36	2.76	5.52
Philadelphia	1,115,562	389	159	24.44	10.40	15.86	1.82	3.90
Brooklyn	978,394	536	168	27.55	7.54	18.85	—	3.77
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	162	40	11.05	16.25	1.30	1.95	3.90
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,131	137	81	37.96	7.30	32.85	.73	2.19
Cincinnati	305,000	110	47	20.02	13.65	14.56	—	1.82
Cleveland	200,000	88	31	14.82	6.84	5.70	3.42	3.42
Pittsburg	243,709	150	91	37.84	4.62	17.16	3.30	3.30
Milwaukee	250,000	66	34	25.84	12.16	6.08	1.52	13.68
Nashville	87,754	31	15	35.53	16.15	25.84	—	—
Charleston	65,165	45	12	13.33	17.77	11.11	2.22	—
Portland	40,000	8	3	12.50	—	—	—	—
Worcester	96,217	25	10	12.00	8.00	4.00	—	—
Fall River	87,411	28	15	25.00	10.17	17.85	—	—
Lowell	87,191	33	15	27.27	15.15	27.27	—	—
Cambridge	77,100	19	9	21.04	31.56	16.78	5.26	—
Lynn	62,656	13	6	15.38	23.07	—	—	—
Springfield	48,884	21	6	4.76	28.56	4.76	—	—
Lawrence	48,235	—	—	—	—	—	—	—
New Bedford	45,886	16	6	12.50	31.25	6.25	—	—
Holyoke	41,278	—	—	—	—	—	—	—
Salem	32,233	17	2	—	35.28	—	—	—
Brockton	32,140	7	1	—	14.28	—	—	—
Haverhill	31,396	11	4	18.18	—	18.18	—	—
Chelsea	30,264	9	0	11.11	—	—	—	11.11
Malden	29,594	7	3	14.28	—	—	—	14.28
Newton	27,556	5	1	—	—	—	—	—
Fitchburg	27,146	6	2	—	—	—	—	—
Taunton	26,972	5	1	—	—	—	—	—
Gloucester	26,688	6	0	—	33.33	—	—	—
Waltham	22,058	4	0	25.00	—	—	—	—
Quincy	19,642	5	0	—	20.00	—	—	—
Pittsfield	18,802	2	1	—	—	—	—	—
Everett	16,585	4	3	—	—	—	—	—
Northampton	16,331	3	0	33.33	—	—	—	33.33
Newburyport	14,073	8	1	—	12.50	—	—	—
Amesbury	10,920	3	0	33.33	33.33	—	—	—

Deaths reported 2,908: under five years of age 1,293; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fevers), 672, diarrhœal diseases 366, consumption 313, acute lung diseases 278, diphtheria and croup 136, typhoid fever 39, whooping-cough 33, measles 31, scarlet fever 31, cerebro-spinal meningitis 20, erysipelas 6, malarial fever 6, small-pox 2, typhus fever 2.

From whooping-cough New York 8, Philadelphia 7, Brooklyn 5, Chicago, Cincinnati and Pittsburgh 3 each, Nashville 2, Boston and Portland 1 each. From measles New York and Pittsburgh 12 each, Chicago 4, Philadelphia, Brooklyn and Cincinnati 1 each. From scarlet fever Pittsburgh 8, Brooklyn 7, New York 4, Boston 3, Philadelphia, Milwaukee and Fall River 2 each, New Bedford, Waltham and Amesbury 1 each. From cerebro-spinal meningitis New York 6, Chicago and Washington 3 each, Cleveland, Worcester and Lynn 2 each, Brooklyn and Milwaukee 1 each. From erysipelas Chicago and Boston 2 each, New York and Philadelphia 1 each. From typhus fever New York 2. From small-pox New York and Chicago 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,322,429, for the week ending June 17th, the death-rate was 19.4. Deaths reported 3,842; acute diseases of the respiratory organs (London) 234, diarrhœa 250, measles 143, whooping-cough 89, diphtheria 81, scarlet fever 74, fever 20, small-pox (London 6, West Ham, Birmingham and Manchester 2 each, Nottingham, Derby, Oldham, Halifax, Bradford, Sheffield and Hull 1 each) 19.

The death-rates ranged from 10.3 in Portsmouth to 32.2 in Swansea; Birmingham 15.3, Bradford 19.1, Croydon 16.3, Hull 20.2, Leeds 15.8, Leicester 18.5, Liverpool 28.9, London 19.1, Manchester 25.0, Newcastle-on-Tyne 14.6, Nottingham 12.1, Preston 15.5, Sheffield 18.9, Sunderland 19.0.

In the thirty-three greater towns of England and Wales with an estimated population of 10,322,429, for the week ending June 24th, the death-rate was 22.1. Deaths reported 4,377; acute diseases of the respiratory organs (London) 252, diarrhœa 496, measles 128, whooping-cough 95, diphtheria 86, scarlet fever 54, fever 41, small-pox (London 11, Bradford 4, Birmingham, Oldham and Halifax 2 each, West Ham, Birkenhead and Manchester 1 each) 24.

The death-rates ranged from 11.5 in Norwich to 32.9 in Liverpool; Birmingham 21.4, Bolton 20.5, Bradford 19.8, Croydon 18.2, Hull 17.0, Leeds 19.9, Leicester 24.6, London 22.6, Manchester 26.6, Newcastle-on-Tyne 21.4, Nottingham 15.8, Oldham 19.9, Salford 26.9, Sheffield 22.8, West Ham 14.4.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JULY 8, 1893.

JAMES S. LEYS, commissioned an assistant surgeon in the Navy.

G. S. BEARDSLEY, medical director, detached from Navy Yard, Washington, D. C.

C. H. WHITE, medical inspector, detached from Smithsonian Institution.

JOHN C. WISE, surgeon, ordered to Navy Yard, Washington, D. C.

C. U. GRAVATT, surgeon, ordered to the Smithsonian Institution.

C. D. W. BROWNELL, assistant surgeon, detached from the U. S. S. "Newark" and granted one month's sick leave.

S. G. EVANS, assistant surgeon, ordered to the U. S. Receiving-ship "St. Louis."

C. W. RUSH, passed assistant surgeon, ordered before Retiring Board.

THE PAN-AMERICAN MEDICAL CONGRESS EXCURSION TO ROME.

It has been definitely determined that the Pan-American Medical Congress Excursion to the Eleventh International Medical Congress will sail on the S. S. *Werra* from New York, September 9th, the day following the adjournment of the Congress at Washington, and will arrive at Genoa, September 20th, four days before the opening of the Rome meeting.

Round-trip steamer tickets may be procured for $142.50 for inside rooms, and $150 and upwards for outside rooms. Tickets are good for members of the Congress and their families and may be used at option of holder to return on any steamer of the line from Genoa, or on Saturday steamers from Bremen, or Sunday steamers from Southampton, during the months of October, November and December. This exceptional rate is made for members of the Pan-American Medical Congress.

RECENT DEATHS.

BENJAMIN A. FORDYCE, M.D., of Union Springs, N. Y., died June 3d, aged seventy years. During the Rebellion he was assistant surgeon of the 160th Regiment of New York Volunteers. He was at one time President of the New York State Medical Association.

REV. E. P. THWING, M.D., died in Canton, China, of typhoid fever. He was a graduate of the Andover Theological Seminary and of the Long Island College Hospital. He was actively interested in starting a hospital for the insane in connection with his missionary work.

BOOKS AND PAMPHLETS RECEIVED.

Twenty-sixth Annual Report of the Massachusetts Infant Asylum. 1893.

Catalogue of the Albany Medical College, Sixty-second Session, 1892–93, and Announcement for Session, 1893–94.

Zur Therapie der Hautkrebse. By Dr. Oscar Lassar. Sonderabdruck aus der Berliner klinschen Wochenschrift. 1893.

Pathology of the Vermiform Appendix. By T. N. Kelynack, M.D. With illustrations and bibliography. London: H. K. Lewis. 1893.

Bibliographie der Klinischen Helminthologie; Ascaris, Oxyuris, Trichocephalus, Ankylostomum. Von Medicinalrat Dr. J. Ch. Huber. 1893.

Colles' Fracture; Illustrated by Splints used in Treatment and by Photographs of Cases. By E. H. Woolsey, M.D., Oakland, Cal. Reprint. 1892.

Nostrums for increasing the Yield of Butter. By Harvey W. Wiley, Chemist of the United States Department of Agriculture. Farmers' Bulletin, No. 12. Washington. 1893.

Traitement des Végétations Génitales Chez la Femme. Du Bleu de Méthylène comme Traitement dans Différentes Maladies Infectieuses et Particulièrement dans la Vaginite Purulente d'Origine Blenorragique. Par G. Richard D'Aulnay. Reprint. 1893.

An Ovarian Tumor Weighing 111 Pounds Removed from a Child of Fifteen, whose Weight was 68 Pounds. The Real Rewards of Medicine. Laparotomy for Apparent Intestinal Paralysis which Caused Arrest of the Intestinal Contents and was Equivalent to Intestinal Obstruction. Case of Cancer of the Hepatic Flexure of the Colon Producing Intestinal Obstruction; Temporary Relief by an Artificial Anus; Later Re-establishment of the Continuity of the Bowel by Ileo-Colostomy by means of Murphy's Button. By William W. Keen, M.D., of Philadelphia. 1893.

Lecture.

TUBERCULOUS PLEURISY.[1]

THE SHATTUCK LECTURE FOR 1893.

BY WILLIAM OSLER, M.D.,
Professor of Medicine in Johns Hopkins Hospital, Baltimore.

MR. PRESIDENT AND FELLOWS: — Many members of your ancient and honorable body (Bowditch, Wyman, Ellis, Garland, Sears and others), have dealt with many problems in connection with pleurisy; and without making invidious comparisons it may be said that their contributions, more particularly those of the late Henry I. Bowditch, are the most important which have been made on the subject in this country. While modesty made me hesitate to select any question relating to pleurisy as the topic for the Shattuck Lecture of this Society, I felt that differences of opinion on many points — not the least on those concerning the frequency, varieties and sequences of the form known as tuberculous — would justify the narration of an experience gleaned during the first four years of service in the medical wards of the Johns Hopkins Hospital.

I. INCIDENCE OF TUBERCULOUS PLEURISY IN THE POST-MORTEM ROOM AND IN THE WARDS.

(*a*) *In the Post-Mortem Room.* — A trustworthy estimate of the incidence of tuberculous pleurisy can be had only by anatomical investigation. Uncertainty is inherent to clinical records of an affection such as pleurisy, the diverse etiological factors of which cannot be always discriminated at the bedside, even with the help of bacteriology.

Accordingly, with the kind assistance of Dr. Rupert Norton, and with the consent of my colleague, Professor Welch, I have carefully analyzed the post-mortem records of the 101 successive cases from my wards in which pleurisy — fibrinous, sero-fibrinous, hæmorrhagic or purulent — was found; and the record is of interest as showing the incidence of tuberculous pleurisy in a medical service varying from 70 to 90 beds. There were 32 cases out of 101 in which the pleurisy was definitely tuberculous. I have estimated as such only those in which tubercles were present on the pleural layers, either as fresh miliary granulations, caseous masses or diffuse fibro-tuberculous membranes. Of these cases there were eight with purulent exudate, all associated with pneumothorax, and two with hæmorrhagic fluid. Seven were cases of acute miliary tuberculosis with fibrinous and sero-fibrinous exudate; four were instances of acute miliary tuberculosis with a purely fibrinous effusion; and thirteen were cases of chronic sero-fibrinous exudate with more or less thickening of the pleural layers. In four instances the sero-fibrinous exudate was encapsulated.

There were thirteen cases of pulmonary tuberculosis in which pleurisy was present without our being able to say definitely that it was of a tuberculous nature. In ten of these cases the exudate was fibrinous, and three sero-fibrinous. It will thus be seen that the incidence of tuberculous pleurisy among these 101 cases was a little less than 32 per cent. By far the most common forms of pleurisy are the sero-fibrinous and fibrinous, secondary to acute disease of the lungs, or occurring as a terminal process in chronic affections of the heart, arteries or kidneys.

[1] Delivered before the Massachusetts Medical Society, June 13, 1893.

(*b*) *In the Wards.* — Passing now from the certain and definite data of the post-mortem room, let us turn to the wards and inquire into the etiology of the cases of acute pleurisy which have been under observation. I have thought it better to review only those cases in which there has been a pleurisy with effusion coming on acutely or subacutely, and in which the effusion was sero-fibrinous, not simply fibrinous and not purulent. I have excluded the former from analysis because of the very great frequency, as the post-mortem reports show, of a simple fibrinous pleurisy in so many varied conditions, often overlooked clinically, of which, of course, tuberculosis is one, indeed one of the most common. I have not included the purulent cases, partly because there is here much less dispute, as they have a more definite and well-recognized etiology, and partly from the fact that abscess of the pleura — empyema — is regarded with us as a strictly surgical affection, and the cases are either admitted directly to the surgical wards or turned over at once. This may account for the somewhat remarkable absence of purulent pleurisies in the post-mortem records of cases from my wards, apart from the instances of pneumothorax. Still it must be noted that of 14 cases of empyema operated upon, 12 recovered, exclusive of the cases of empyema with pneumothorax. The cases in the following analysis, then, have been admitted to the wards with well-marked signs of pleurisy with effusion. Of the 58 cases 45 were males, 13 females; 10 were in the colored race, 48 in the white.

In attempting to estimate from the clinical side the tuberculous character of a pleurisy the following points are to be considered:

(1) Mode of onset. In reality this is not a criterion of any moment since it must be acknowledged that an acute tuberculosis of the pleura may come on abruptly with a stitch in the side, or even with a chill. A slow insidious onset is more common, but by no means characteristic.

It is so difficult to obtain from hospital patients accurate information as to the mode of onset, often indeed as to the duration of their illness before admission, that we cannot place very much reliance upon the facts so obtained; but the errors, I suppose, are equally common throughout the entire class. As a general rule, too, the patients do not seek relief until the symptoms have become aggravated. Thus it is interesting to note that in the 58 cases of sero-fibrinous pleurisy the duration of illness prior to admission was given as one week and under in 8 cases; between one and two weeks, 16 cases; between two and three weeks, 7 cases; one month and over, 25 cases.

Of the symptoms for which they sought relief the following were the most striking: In 2 cases no history could be obtained. Of the remaining 56 cases the symptoms for which they sought relief were, as a rule, cough, dyspnœa and pain in the side; more rarely fever or chills and fever. Thus, in 45 cases, the patient complained of cough; in 44 of dyspnœa; in 41 of pain in the side; and in 14 there was a history of chills and fever. Cough and dyspnœa are by far the most frequent causes for which the patient seeks relief in hospital. In two only of the cases did the patient give any definite account of an exposure to cold or of a wetting. As stated, the onset is no etiological criterion, and the claim at present is, that a great majority of the cases of pleurisy *a frigore* are, in reality, tuberculous. In the history obtained from the patient, how-

ever, there may be very suggestive features; for instance, cough and loss of weight for some months previous, or hæmoptysis, or a previous attack of pleurisy. Thus, one patient, Case 1 of the series, had had a cough at intervals for three years, and when admitted, the right side of the chest was full of greenish, sero-purulent fluid. After many tappings he improved very much, and, though the cough had persisted for so long, there was no sign of pulmonary disease, but subsequently bacilli were found in the expectoration. Another interesting case, No. 4, had hæmoptysis nine months before, and though he was an extremely robust, vigorous man, the insidious onset of the pleurisy led us to suspect tuberculosis. Bacilli were demonstrated in the exudate. The patient subsequently developed pulmonary tuberculosis. In two instances only the patients had pleurisy with effusion previously; in one, five months before; in the other, eight years before. Both did well, and both were discharged at at the end of three weeks.

(2) A point, on which more stress has been laid than the facts justify, is the family history; but inheritance is now generally acknowledged to be of a susceptible soil, rarely of the germ itself. Local conditions are probably of most importance in influencing the susceptibility to an infectious agent so widely diffused as that of tuberculosis. Still it is interesting to note the presence or absence of tuberculosis in the ascendants or near relatives; thus in two of the fifty-eight cases the father died of tuberculosis; in four, the mother; in one, the father and mother; in six, a brother or sister; in one, a brother and sister; in four, an aunt or uncle; and in two the wife died of tuberculosis, in one the husband. In 37 of the cases positive questions as to tuberculosis in the family were answered in the negative, and in three it could not be obtained.

(3) The character and contents of the exudate. There is nothing specific in the physical character of the effusion in tuberculous pleurisy, nothing from which on aspiration a definite opinion can be formed. The exudate may be sero-fibrinous, simply serous, hæmorrhagic, sero-purulent or purulent. Of these, hæmorrhagic and the thin sero-purulent may be called suggestive. Of the cases of acute pleurisy with effusion, at the clinic, seven were blood-tinged. Of the cases from the wards in which pleurisy was found post-mortem, in four the effusion was hæmorrhagic; of these, two were tuberculous and two were simple. The thin sero-purulent exudate, a little opalescent, often with a greenish tint, and which microscopically contains a granular, fatty matter and only a few leucocytes, is very suggestive of a tuberculous lesion. The cover-slip and culture-tests, so much practised of late, yield variable results. In the first place it is conceded that the great majority of tuberculous sero-fibrinous effusions are sterile; organisms are neither found on cover-slip preparations nor does anything grow in cultures. Our own experience is in accord with this, except that in one case the tubercle bacilli were definitely determined in the exudate. This was after repeated tappings. A sterile effusion is regarded as a point in favor of the tuberculous nature. In the purulent tuberculous exudates the bacteriological results are also variable. In some of the acute cases, as in one which I shall describe shortly, the bacilli of Koch were abundant. In other instances only pus organisms or the diplococci are present, or there may be no micro-organisms. A more important and more satisfactory test is the inoculation of the exudate into the peritoneal cavity of guinea-pigs, experiments which in the hands of some of the French observers have yielded positive results in the sero-fibrinous and purulent pleurisies of individuals apparently not tuberculous.

When Koch's tuberculin was in vogue, it was hoped that it might at any rate give us a means of positive diagnosis. The report of the German hospitals shows that in the subjects positively tuberculous the great proportion of them present reaction, whereas in suspected individuals about 60 per cent., and in non-tuberculous subjects only about 25 per cent. Subsequently, in speaking of diagnosis, I will narrate an instance in which the acute reaction to tuberculin led us into a serious error in diagnosis.

And lastly, the nature of the pleurisy may not be apparent for months or years, when the onset of a tuberculosis in other parts may indicate clearly the character of the whole process. You are all familiar with the striking statistics published of late years, none more interesting than those by Dr. Vincent Y. Bowditch from his father's records. Such statistics from private practice are of infinitely more value, as a rule, than those from hospitals. The time has been altogether too limited at the Johns Hopkins Hospital to determine, even if we could, the subsequent history of the great proportion of the cases of sero-fibrinous pleurisy which have been under treatment. It is interesting to note, however, in striking contrast to figures from some hospitals, that so far as our records go, only five of these patients have subsequently had tuberculosis. While our hospital figures are by no means in favor of the view that a large proportion of all sero-fibrinous pleurisies are of a tuberculous nature, I must confess that in private practice I have, year by year, been increasingly impressed by the frequency with which the subjects of pleurisy with effusion subsequently become tuberculous. Such cases as the following are not uncommon.

A few months ago I saw Dr. Martinet, a man aged forty, of fine physique and general good health, and excellent family history. In the summer of 1892 he developed, without obvious cause, pleurisy on the right side, and in this attack was seen on several occasions by Dr. W. S. Thayer. He was aspirated twice, and made a very satisfactory recovery, and resumed his work. Three months subsequently, he developed basilar meningitis, of which he died in three weeks. There was nothing in the condition of this patient or in the character of the pleurisy to justify the suggestion of a tuberculous nature; but the onset of a meningitis, which ran a long course like the tuberculous form, with strabismus, etc., rendered pretty clear the nature of the process. A very similar case, I remember, in the practice of my late colleague, Dr. Ross, of Montreal. A young man was admitted with pleurisy on the left side, and the history of having had a previous attack several months before. The effusion gradually diminished, but signs of local disease developed at the apex of the right lung. About three months after admission a purulent otitis media developed on the left side, followed shortly by meningeal symptoms, of which he died in the third week. The autopsy showed greatly thickened pleural membranes on the left side, many tubercles and local tuberculous disease at the right apex, with a tuberculous basilar meningitis.

I have seen recently a young man with an advanced pulmonary tuberculosis, who consulted me first in Philadelphia in October, 1888, when he had the left pleura full to the clavicle with a serous exudate. There is no tuberculous history in his family. The disease set in insidiously with cough. He was tapped but once, and he rapidly gained health and strength. I did not see him again professionally until the autumn of 1892, when he had had attacks of severe prostration and shortness of breath, but very little fever. Since then, signs of local disease have developed and extended, and tubercle bacilli are present in the expectoration. Cases such as these could be paralleled from the note-books of any physician in large practice. The cases from the wards which have developed pulmonary tuberculosis will be described later.

II. CLINICAL TYPES.

Tuberculous pleurisy may be part of a general miliary infection, but it is rare to find the pleuritic symptoms dominating, or even pronounced enough to attract attention. In reviewing any large number of cases, the character of the onset and the quick or slow course offer the most valuable features for classification, and separate two types, to which may be added a third, when the pleurisy forms part of a general serous membrane tuberculosis.

1. *Acute Tuberculous Pleurisy.*

It is difficult to say, in our present state of knowledge, the proportion of instances of acute sero-fibrinous pleurisy due to tuberculosis. The cases are rarely fatal; a large majority recover completely; in a few the condition becomes chronic; a variable number develop tuberculosis. More than this we cannot say, but clinical and anatomical study enables us to separate, at least, three groups of tuberculous cases in which the onset is acute.

(*a*) *Acute tuberculous pleurisy, with subsequent chronic course.*

There are cases of tuberculous pleurisy in which the disease sets in abruptly with pain in the side, fever, cough, and sometimes with a chill. There may be nothing whatever to suggest a tuberculous process; the subject may be of fine physique and of excellent family stock. Nor may there be anything in the course of the disease, at first, to excite suspicion. The effusion augments and the patient is tapped, perhaps repeatedly, and may get well with evidences of a greatly thickened pleura. Then the pleurisy may recur, and the case is labelled one of chronic pleurisy with thickening of the membranes, and finally the lung is infected, or tuberculosis of other parts becomes manifest. The following is a good illustrative case, of special value from the fact that the death occurred from an intercurrent affection, and we were able to study the condition of the pleura just about a year after the onset of the first illness.

CASE I. Pleurisy, with acute onset; chronic course of nearly a year's duration; repeated tappings; acute pneumonia; death; autopsy.

John A., aged forty-five, was admitted to ward F of the Johns Hopkins Hospital, June 18, 1892, complaining of shortness of breath, swelling of the feet and legs.

His mother and four or five of her sisters died of phthisis.

When young, had (he was told) scrofula, and had an operation performed on both hips; the wounds discharged for two years. He was not then, nor has been since, at all lame. Ten years ago he had hydrocele on the right side, which was tapped. After childhood he grew into a remarkably strong, powerful man. Previous to January, 1892, he had been working in the Belt-line tunnel for nine months, and was in perfect health, weighing 235 pounds. He went to Virginia, and while there, in January, his present illness began. While at work on a bridge he felt dizzy, had a severe pain in the left side, followed by cough, shortness of breath, much expectoration, which was not, however, blood-tinged. He went to a hospital in Washington, and was told he had typho-pneumonia. He had high fever, and was evidently very ill. The feet were swollen, and he had at times heavy sweats. He was several months in hospital, and was convalescent only about a month before his discharge on June 2d. He does not give a very clear account of his symptoms while in the hospital at Washington, but he had cough and pain in the side, and he lay principally on his right side. He lost also a great deal of weight.

Condition on admission (by Dr. Thayer). Patient is a large-framed, muscular, fairly well-nourished man. He is propped up in bed, inclining chiefly towards the left side. Lips and mucous membranes of good color; respirations rapid, 32; pulse, 128, regular, tension rather high; radial vessels are somewhat sclerosed. Temperature on admission, 99°; weight, 175 pounds.

Inspection. Thorax; the left side looks larger and movements are much restricted. The cardiac impulse is seen to the right of the sternum.

Percussion gives clear resonance in the right front as far as the third rib, where, close to the sternum, in the fourth and fifth interspaces, it becomes flat. On the left side there is modified resonance below the clavicle, shading into absolute flatness at the second rib, in the erect posture; at the third rib when recumbent. The flatness extends over the whole of the left back. Tactile fremitus is absent over the flat region, and the breath sounds are distant and tubular. On the right side they are clear, loud and breezy. The heart sounds are heard best to the right of the sternum, and are clear, the second loud and sharply accentuated.

Examination of the abdomen was negative. The urine was clear, yellow, acid, faint trace of albumin, no casts. The patient was aspirated, and 1,500 c. c. of a clear, yellow serum withdrawn.

For the first month in hospital the patient's condition did not materially improve. He lost in weight from 175 pounds to 157; the temperature range was constantly between 98.5° and 100°, rarely going to 100.5°, and only once, on the second day after his admission, reaching 101.5°. The fluid gradually reaccumulated, and he was tapped on the 21st, with a withdrawal of 1,280 c. c. of fluid; on the 30th, when 1,000 c. c. were withdrawn; and on July 8th, when 1,100 c. c. were removed. Early in July he began to improve — the appetite increased, and he gained in weight. On the third of August the following note was made: "The patient has been aspirated in all six times, the last time being on the 26th of July. On inspection, there is now very marked flattening of the left front. The expansion is greatest on the right side, on which percussion note is full and clear. On the left side there is flat tympany above the second

rib, below absolute flatness. Over the flat areas there is a distant, tubular breathing, of almost the same intensity everywhere. The vocal fremitus is diminished. The breath sounds very nearly absent in the supraspinous fossa." He was aspirated the seventh time on August the 3d, with removal of 800 c. c., and the eighth time on August 16th, when 600 c. c. were removed; the fluid of the last four tappings was blood-tinged. In the latter part of July and the first two weeks in August he improved rapidly and gained in weight, and on the 16th weighed 175 pounds.

The patient was discharged on August 18th, when the following note was made: "The left side of the chest seems somewhat sunken; right side expands fully and well, and looks large. At the left apex there is a flat tympany, which shades into flatness at the fifth rib, just outside the nipple line. At the left back there is a marked dulness, becoming absolute about an inch below the angle of scapula. Above this point the vocal fremitus is felt, below it is absent. Respiration is heard, though feebly, everywhere except at the extreme base. The point of maximum cardiac impulse is not to be made out; the sounds are heard distinctly over the normal area; the second pulmonic sound is accentuated."

The diagnosis of pleurisy with effusion was made. No suspicion was entertained by Dr. Thayer, under whose care he came during my absence, that the process was tuberculous; indeed, there was no evidence whatever to indicate this, except that the last four tappings were slightly blood-tinged.

November 30, 1892. Patient was re-admitted to-day, with dyspnœa, cough and fever. He states that he has remained well since discharged, August 18th, and has been working on the streets ever since. Three weeks ago he had slight shortness of breath after an unusual exertion, and ever since that has had slight cough, with white, frothy expectoration. He worked every day until November 26th. Last evening he had a heavy chill, in which he shook for an hour. This was followed by fever, which persisted all night. This morning he spat up a little blood. His appetite has been good.

Condition on admission. Weight is 170 pounds. Temperature, 100.4° at 2 P. M., rising to 103° at 4 P. M. He had a profuse sweat in the afternoon, and the temperature fell to 98° at six o'clock. Pulse ranged from 80 to 120; respirations from 18 to 36.

December 1st. This morning patient is lying on his back, face somewhat flushed, lips and mucous membranes and finger-tips somewhat cyanotic. Pulse 104, full, of fair tension. Respirations 32. There is marked flattening in the left side in front; the right side of the chest expands fully. Resonance throughout the right front and axilla, good. There is marked dulness over the left chest, resonance in front having a slight tympanitic quality. There is dulness everywhere over the left chest behind, shading into flatness below the middle of the scapula. On the right side behind, the resonance appeared good, and the respirations were clear. On the left side behind, the breathing was distant, tubular, and in the infrascapular region scarcely audible, vocal fremitus distinct. Dr. Hewetson put in a needle in the left back and obtained clear fluid.

Heart, well marked epigastric impulse. The maximum impulse cannot be made out. The sounds are the best heard in the fourth interspace, four centimetres from the sternum. The spleen is not palpable; liver not enlarged.

The sputum not very abundant, muco-purulent, blood tinged, contained a few distinct tubercle bacilli, and many encapsulated diplococci.

The urine, reddish brown, specific gravity 1,025, moderate amount of albumin, no tube casts.

December 3d. Within the past twenty-four hours the signs of consolidation have appeared in the right side, and have extended rapidly. This morning dulness begins at the third space in front, and is marked to the middle of the back behind. The breathing is of a modified, tubular character, and accompanied with fine crepitant râles. The temperature rose throughout December 1st, and between 6 A. M. and 4 P. M. of the 2d, was continuously between 105° and 106°. For the past twenty-four hours the range has been between 103° and 104°. The pulse range has been from 106 to 120. The cough has been very distressing. The sputum is rusty, brown, tenacious and contains tubercle bacilli. On the evening of to-day a moderate venesection was practised.

December 4th. The dulness has extended on the right side behind, and there is now tubular breathing from the spine of the scapula to the base; pulse is good; the temperature fell last evening to 101°; this morning it is high again, 104°. The respirations are about 40. There is marked leucocytosis, 33,000 white corpuscles per cubic millimetre. During the day, patient sank gradually, the pulse becoming feeble, in spite of the persistent administration of stimulants, ammonia, etc.; the temperature kept up, and he sank and died at 2 A. M.

Autopsy (Dr. Flexner). Body of a large-framed, well-nourished man. Peritoneum smooth. Thorax; universal adhesions, which were readily stripped off on the right side. On the left side, dense fibroid union of the layers of the pleura to a distance of about eight centimetres from the sternal margin. The heart much distended, with firm, gelatinous clots; moderate hypertrophy of the left ventricle, distinct hypertrophy of the right, the walls of which were firm and considerably thicker than normal. No endocarditis.

In removing the left lung, an encapsulated serous effusion was opened, occuping the layers of the pleura over the postero-lateral region of the left chest. The costal pleura was greatly thickened, ranging from one to one and one-half centimetres; at the diaphragm, it was in places as much as two centimetres in thickness. The visceral layer was also thickened, but not to the same degree, only from three to five millimetres. Both layers were smooth, grayish-white in color, in places presenting areas of congestion and hæmorrhage. There was a good deal of grayish-white gelatinous fibrin in places, closely adherent to the visceral pleura. There were no caseous masses, no spots of caseous infiltration on the surface of either layer. On section, the thickened pleura had the appearance and consistence of firm, new connective tissue, and at first sight it seemed as if the process were really a simple, chronic pleurisy, more particularly as no miliary tubercles were noticed on the surface, and no caseous masses. On close examination, however, of the cut sections, particularly in places, grayish, translucent, fibroid tubercles could be seen projecting above the cut surfaces. These were particularly marked in the thickened diaphragmatic layers. At one or two spots there were found small areas, from three to five milli-

metres in extent, of grayish, yellow, tuberculous infiltration. The left lung was very considerably compressed, but still it everywhere contained air, except at the extreme base. There were no miliary tubercles, no caseous masses. The right lung was large, voluminous, retained its shape, did not collapse and was everywhere airless, except at the extreme apex and the antero-lateral margin. The pleura was a little thickened and covered with tags of old adhesions; no tubercles were seen. On section there was at the apex an area of caseation and softening the size of a walnut, surrounded with tubercles and smaller areas of caseation. This communicated directly with a good-sized bronchus. The lower part of the upper lobe, the greater part of the middle lobe, and all of the lower lobe, were in a condition of red hepatization. There were no miliary tubercles, no caseation. The bronchial and tracheal glands were greatly swollen, tumefied and presented here and there small caseous masses. There was nothing of special note in the abdominal organs; no tubercles. In the right testicle there was a fibroid and cartilaginous, cyst-like structure containing cholesterin.

There was a marked tuberculous history in the patient's family, and the latter tappings were blood tinged, points upon which in a less robustly built man, we would doubtless have laid greater stress. On his return with an acute pneumonia, tubercle bacilli, as well as pneumococci, were found in the sputum, and the former gave us, for the first time, a definite clue to the nature of the pleurisy, now chronic, but in process of healing. It is interesting to note that the tubercle bacilli came from a very small focus of caseation and softening in communication with a bronchus.

(To be continued.)

Original Articles.

ABDOMINAL HYSTERECTOMY FOR FIBROIDS, WITH CASES.[1]

BY J. W. ELLIOT, M.D.

THE indications for operating on fibroids generally agreed on by the best men of the day are:

(1) Hæmorrhage.
(2) Pain.
(3) Large size of the tumor.
(4) Rapid growth.
(5) Pressure symptoms, especially of bladder and ureters.
(6) Presence of ascitic fluid.

To just what extent any of these symptoms must be present, to call for an operation, is an open question. With considerable pain, for instance, in a medium-sized tumor growing slowly, some men would operate much earlier than others. There are two important sides to this question which, considered separately and in relation to each other, will, I am sure, improve our judgment in this matter.

First, Can these symptoms be controlled? If not, to what do they lead?

Second, How successful is the operation? When is it most successful? When is it least successful and most fatal?

As to controlling the symptoms; hæmorrhage is the one symptom that has been most successfully treated by palliative measures. Curetting, ergot and galvanism have proved useful, and should be tried when the tumor is small. But these remedies are usually only partially successful, and are not without danger. The cause is still present, and will soon reassert itself. If the palliative treatment is unsuccessfully persisted in a little too long, the patient comes to operation anæmic and debilitated, and must, therefore, be transferred into a class of less favorable operations. Whatever good has come from electricity in these cases, we know also of a great amount of harm. Patients have told me that they did not suffer as much from the operation as they did after each application of electricity. I have seen peritonitis follow this treatment, and we are all familiar with the reported cases of septicæmia from the same cause. Many operators have complained of the adhesions found when patients who have been treated by galvanism come to operation.

Pain has sometimes been relieved by galvanism, but it is usually due either to contractions of the uterus, or to pressure on the pelvic nerves or other organs, in which case no palliative treatment could be advised. Large size, rapid growth and pressure symptoms evidently cannot be relieved.

Thus we see that with the exception of hæmorrhage, and that not very certainly, the symptoms indicating the operation cannot be relieved. If not relieved, they usually lead to slow death, or to a hopeless invalidism. Beside these symptoms, there are other more treacherous complications which lead in the same direction. The tumors often become malignant. They break down and suppurate inside. Their presence causes dangerous diseases of the Fallopian tubes, and other complications difficult to recognize without operation, on account of the prominence of the tumor itself. It is not at all unheard of for the blood, or other discharge from the tumor, to become infected and to cause a fatal septicæmia. I have just seen, in consultation, a very sad case of such an accident. Curetting a very large, irregular uterine cavity already filled with germs, or plugging such a cavity with a vaginal tampon, is evidently not devoid of danger.

Now, as to the other side of the question; for the more successful the operation, the earlier we should advise it.

Statistics are so misleading that no one can say exactly what the mortality of this operation is. But we know that is much lower in the last five years. Thornton, Bantock, Meredith and others have been having very good results of late, also men in our own country, so I think it is fair to infer from the late reports that the mortality of the best operators is below ten per cent. This is such an improvement on the thirty-per-cent. mortality, which pertained ten years ago, that we must reconsider our point of view, and advise the operation earlier and oftener.

The operation is most favorable, when the tumor is small, and the health has not been seriously affected by the hæmorrhage, pain, etc. The operation is least successful when the tumor is very large, for then the operation is most severe, and the patient, debilitated by the long standing disease, is least able to stand it.

From all this, and my own favorable experiences, having had eleven operations with one death, and that in a large tumor of long standing, I have decided to advise the operation as soon as any of the above symptoms can be said to have become persistent. If the

[1] Read before the Suffolk District Medical Society, April 29, 1893.

tumor is small, I should first remove the ovaries (I have also had several very favorable results from this operation), but if it is as large as a cocoanut, and any of the symptoms above mentioned are persistent, I do not advise curetting or removal of the ovaries, but hysterectomy, because the tumor, already too large to carry with comfort and safety, will, in all probability, increase in size.

As to the method of doing the operation: it depends wholly on the size and position of the tumor and the strength of the patient. I have never had a death from the extra-peritoneal treatment of the pedicle with a wire or rubber ligature. I am sure that in a large tumor in a debilitated patient it is the best operation, for it is much the quickest and least severe of all the operations. Such patients may die of shock, if the operation is too severe, but they are used to the torture of the tumor and can stand the extra-peritoneal treatment of the stump with patience. The operation advocated by Kelly, that of sewing the stump together and then fastening it into the abdominal wound seems to me less advisable than simply sewing the open stump into the abdominal wound. This I have done with a good result. It has the advantage of taking the open uterine canal out of the abdominal cavity and placing it where it can be dressed with gauze. Convalescence is quite as short as in any of the other operations. It is disappointing to find that convalescence is not materially shortened by these newer operations; for when the stump is sewed into the abdominal wound it usually suppurates and takes about as long to heal as when it is crushed in the ecraseur. Bear's operation seems to me a good one, if it will give good results, which remains to be seen. In the only case of mine that died, I was trying to do his operation. It was a severe and complicated case, and I am sure it would have been better to do that particular case with an ecraseur. I do not favor taking out the cervix except for cancer as it weakens the pelvic floor.

HYSTERECTOMY FOR FIBROIDS: CASES.

CASE I. The patient, a single woman, thirty-seven years old, was sent to me by Dr. Johnson. She had first noticed the tumor in the abdomen fourteen months before I saw her. It had grown rapidly, and was then causing her so much pain that she found it difficult to continue her occupation as a weaver in a mill. She was much reduced in strength, and was annoyed by frequent micturition. Menstruation was not excessive.

The tumor was indistinctly fluctuating, and seemed to move independent of the uterus. The diagnosis was doubtful.

The operation was done November 5, 1886, at the Free Hospital for Women. The tumor was delivered through an incision from symphysis pubis to umbilicus. It proved to be a general fibroid enlargement of the fundus, with a long, narrow cervix. The broad ligaments were tied, and the pedicle, consisting of a small cervix uteri, was held in a wire ecraseur, and treated extra-peritoneally. The ovaries were not removed. The peritoneum was stitched to the stump below the wire. There was a good deal of shock. The temperature rose to 102°, but fell to normal on the third day. The stump was dressed with iodoform gauze, and was not looked at for six days, when it was found to be dry and hard. The wound healed by first intention, and the wire was removed on the fourteenth day. The patient was up and about at the end of a month.

The specimen weighed four pounds, and was a general fibroid enlargement of the uterus, with four inches of uterine cavity, which was large enough to admit two fingers. It contained many dilated lymph-spaces, and large blood-vessels, which had given it a semi-solid feel.

Six months later, the patient was seen and found in good condition. She had resumed her work in the mill, but complained of hot flashes and other discomforts which usually occur at the change of life.

CASE II. The patient was a negress, age thirty. She had been well until one year before I saw her, when she noticed a small lump in the lower abdomen, about as large as an orange. This had steadily increased in size, and was then three inches above the umbilicus. Nine months before I saw her, she began to flow much more than usual; later the flow came three or four times in the month; at last it became continuous and profuse. She had frequent micturition, but no pain, except a dragging feeling and a sensation of weight. She had become short of breath, and was beginning to be troubled by hæmorrhoids. She was well nourished, but the mucous membranes were pale. She had a systolic heart-murmur at both base and apex, with accentuation of the second pulmonic. The tumor was firm and irregular in shape, and moved with the cervix.

The operation was done June 5, 1888, at the Massachusetts General Hospital. The tumor was delivered through a four and a half inch incision. The broad ligaments were tied off, and the pedicle, consisting of an enlarged cervix uteri, was held in a wire ecraseur, and treated extra-peritoneally. The Fallopian tubes were greatly dilated (about two inches in diameter), and bound tightly to the ovaries, which could not be removed. The peritoneum was stitched to the pedicle below the wire. A drainage-tube was placed in the pelvis, behind the stump. The stump was dressed with iodoform gauze, and was not examined until the fifth day, when it was found dry. The drainage-tube was removed on the second day. The patient made a slow recovery. On June 24th, a fluctuating mass was detected in Douglas's fossa. This was aspirated, and proved to be the remains of the dilated Fallopian tubes, which had refilled with clear fluid. July 2d, this was laid open, and drained through the posterior vaginal cul-de-sac.

The patient was discharged well, July 24th, seven weeks after the operation.

CASE III. The patient, a single woman of thirty-nine years, was referred to me by Dr. Fifield, of Dorchester, who had found a fibroid tumor the size of an egg two years previous. She was unable to walk, and had great trouble with the bladder. At times, was unable to hold her water; at others, she passed it every twenty minutes. Micturition was difficult and painful. She suffered a great deal of pain, was unable to work, and therefore could not support herself. There was partial obstruction of the bowels. The catamenia were regular and not profuse, but very painful. A hard tumor was found, extending nearly up to the umbilicus. It evidently grew from the posterior uterine wall, and extended deep into Douglas's fossa. The operation was done May 20, 1890, at a private hospital, assisted by Dr. A. K. Stone. The tumor was found to be a fibroid as large as a child's head, growing in the posterior uterine wall. The uterus and fibroid were so locked in the pelvis that

it was absolutely impossible to lift the mass out of the pelvis. The ovarian arteries were then tied, and the capsule of the fibroid was split over its top and posterior surface. The tumor was enucleated from the posterior wall of the much-enlarged uterus, leaving a ragged hole from fundus to cervix. An attempt to close this cavity with stitches was given up on account of the critical condition of the patient. The whole uterus was then drawn up and enclosed in a wire ecraseur and amputated low down on the cervix. The stump was treated extra-peritoneally.

The operation was severe, and caused much shock, but the patient soon rallied. The temperature rose to 100°. The wound was dressed on the sixth day, for the first time, when it was found moist and sloughy. The wire was cut on the tenth day. The stump sloughed, and discharged pus freely. On the eleventh day, the patient was doing well; but at 2 A. M. she sat up in bed, bathed in perspiration, and gasping for breath, called the nurse to open windows. The pulse became imperceptible, and she was thought to be dying. With stimulants and digitalis, this critical condition passed. The next day, the pulse was very rapid, and the temperature was subnormal. This attack must have been embolism in the lung. She gradually gained strength, and was discharged at the end of six weeks. September 19, 1890, the patient was much improved in general health. The cervix uteri was found to be free from the abdominal wall.

May 21st, she had had whooping-cough for nearly three months. This cough had caused a hernia at the point where the stump had been attached to the abdominal wall. It was controlled perfectly by an abdominal bandage.

CASE IV. The patient, thirty-six years old, had been married twelve years; had had one child, and one miscarriage. She had had profuse and constant flowing, also pain and vomiting at each menstruation. She had had two attacks of peritonitis; had been confined to her bed for several months the year before, and had, when I saw her, been in bed for thirteen weeks. An enlargement of the abdomen, beginning eight years before, had increased steadily ever since. She was unable to attend to household duties, and desired to have the tumor removed.

Examination showed a hard, rounded tumor, the size of a child's head, just above the pubes, freely movable and not tender. The sound passed two and one-half inches. There was a trace of albumen in urine.

The operation was done September 18, 1891, at the Massachusetts General Hospital. The bladder was dissected from the tumor in front, and a wire ecraseur was passed around the cervix, which formed the pedicle, and was treated extra-peritoneally. The tumor weighed four and one-half pounds. The patient recovered well from the operation. On the following day, there was a smart hæmorrhage from the stump, which was controlled by tightening the wire.

The wire was removed on the sixteenth day. The patient went home well in seven and one-half weeks.

CASE V. The patient was a widow, age thirty-seven, having no children. She first noticed an enlargement of the abdomen eight months before I saw her; since then it had gradually increased in size. About the same time, she flowed for four weeks steadily, having three or four severe hæmorrhages during that time. Since then menstruation had been very profuse. When I saw her, she was very white, and looked sick. Her temperature varied from 100° to 101°.

The tumor was a hard, rounded mass, rising from the pelvis to near the umbilicus, appearing about as large as a man's head. The cervix was small, and moved with palpation of the tumor, being evidently in intimate connection with it.

The operation was at the Massachusetts General Hospital, September 26, 1891. The tumor was delivered by a seven-inch abdominal incision. The broad ligaments being tied off, and the bladder dissected away, a wire ecraseur was slipped over the tumor. The cervix formed the pedicle, and was treated extra-peritoneally. The wire broke, in tightening on the fourth day. The patient made an uninterrupted recovery, and was discharged in five weeks, with a small sinus still unhealed.

CASE VI. The patient, a single woman, of forty-four years, suffered from profuse flowing. The abdomen had been enlarged for four years. She had had difficult micturition for one year. She suffered principally from the size of the tumor.

The abdomen was found to be greatly enlarged. The tumor was elastic, but not fluctuating; was fairly movable, and seemed not connected with the uterus.

Operation, January 18, 1892, at the Massachusetts General Hospital. The incision extended from the pubes to the ensiform cartilage. The tumor was very large, and grew from the fundus uteri. A large part of its blood supply came from the mesentery. The mesentery had evidently become attached to the top of the tumor, and had itself disappeared, leaving a large plexus of arteries and veins to nourish the tumor. Thirty or forty vessels as large as a lead pencil were tied off: the broad ligaments contained very large vessels, and were tied off. The uterine arteries were tied, and the tumor cut away. The pedicle was then sewed into the abdominal wound, and a glass drain placed in the pelvis. The tumor was found to have begun to break down, and was sloughing in the centre.

The wound healed by first intention, except where the stump was sewed in; this suppurated, and did not heal until March 5th, a little over six weeks. The patient was greatly relieved by the operation, and gained forty pounds in the next year.

CASE VII. The patient, a single woman of twenty-seven years, entered the Massachusetts General Hospital in February, 1892, under Dr. J. C. Warren. She was very anæmic and listless, and was flowing profusely. He removed a uterine polyp, with great relief to her. At the operation, he noticed that there were other fibroids present, and one of them quite large. She reentered the hospital September 22d, having been married in the meantime. Ten days before entrance, she had had a miscarriage at three months, which was followed by much flowing and great weakness, loss of appetite, foul vaginal discharge, and a very bad look. She was blanched and weak, and seemed to be mildly septic. The tumor had grown rapidly of late.

Just above the pubes was a large tumor, and several smaller ones, the mass being larger than a cocoanut. The tumor was hard, movable, but tender on pressure. The cervix was patulous, and seemed to be filled with a broken down polypus. The diagnosis was of suppurating fibroid. Hysterectomy was determined on, because there were numerous fibroids, and it was

thought that any palliative operation would be quite as dangerous.

The operation was done September 27, 1892. The patient was in the Trendelenburg position. The broad ligaments were tied off. The bladder was then dissected off the tumor, a temporary rubber ligature was passed around the cervix, and the tumor was cut away. The cervical canal was then cut out, and the sides of the cervix sewed together. These stitches were left long, and by them the stump was held up and sewed into the abdominal incision, silk-worm gut sutures being passed through the abdominal walls and the stump.

There was no shock. The temperature rose to 101.5°. The wound healed by first intention, except where the stump was sewed in. This part suppurated freely, and had to be packed with gauze for several weeks. The wound nearly healed in three and one-half weeks, and the patient went home five weeks after the operation. The tumor consisted of a uterus much enlarged by several fibroids. In the uterine canal was part of a placenta in a putrid condition.

CASE VIII. The patient, a married woman thirty-nine years old, was sent to me by Dr. Comey, of Clinton. She had had no children or miscarriage. Two years previous, she had had a very severe uterine hæmorrhage, and was curetted. For six months, the flow was moderately profuse. Then, it gradually increased, and continued for three months at a time. Of late, it had been irregular, but very profuse and debilitating, keeping the patient in bed. The patient had become very anæmic, and blanched and nervous.

The tumor was a general enlargement of the uterus, and about the size of two fists, the uterine cavity being five inches deep.

The operation was done October 29, 1892, at a private hospital. Patient in Trendelenburg position. The abdominal incision was five inches long. The broad ligaments were tied off, and the bladder dissected away. The wire ecraseur was placed on the cervix as a pedicle, which was treated extra-peritoneally.

The patient made an uninterrupted recovery. Temperature rose to 100°. The wire was removed on the next day. She was up and about in three and one-half weeks, and went home in less than five weeks.

Soon after her return home, she became very nervous, and developed an attack of melancholia, from which she has recovered.

CASE IX. The patient was single, and forty years old. She was brought to me by Dr. Tuck. She had been treated for a fibroid by electricity for two years. The tumor had grown much larger in the last six months, and the patient had lost strength and flesh. She suffered pain while standing. The catamenia were profuse and painful. Both legs were œdematous. The patient was becoming incapacitated for work. The tumor was evidently solid, and filled the entire abdomen, extending deep into Douglas's fossa.

The operation was done on December 14, 1892, at a private hospital. The incision extended to the ensiform cartilage. The tumor was nearly as large as a pregnancy at full term, the veins in the broad ligaments were as large as two thumbs, and the uterine arteries were larger than a lead pencil. The broad ligaments were tied off, each vessel being tied singly. The ovarian and uterine arteries being tied, the tumor was shelled out of its capsule, which dipped deep into Douglas's fossa. The uterus was amputated at the cervix. The capsule left by the tumor was a large, ragged, bleeding hole behind the uterus, and was stitched to the abdominal wall in such a manner as to close the peritoneal cavity above, and to leave the bed of the tumor open to the outside below; the cervix stump was in this lower cavity. This whole space was then stuffed with gauze. The bleeding was profuse, and the patient was in collapse at the end of the operation. In the evening, the condition was worse, and it then became evident that hæmorrhage was going on. Probably some ligature had slipped off of a large vessel. The patient was evidently too feeble to have the abdomen reopened, and died. This case should have been operated on much earlier and it shows the result to continuing useless palliative treatment.

CASE X. The patient was brought to me by Dr. Straus, of Manchester. She was a single woman, and thirty-seven years old. She complained of pain on the right side, which was increased in walking. She also suffered from painful and frequent micturition. She had lost flesh and strength in the last year. She had just recovered from an attack of peritonitis, which had lasted nine weeks.

On examination, a hard, nodular tumor, about as large as two fists, was found between the fundus of the uterus and the bladder. It was thought that this tumor had caused the recent attack of peritonitis, and operation was therefore advised.

The operation was done at a private hospital, February 22, 1893. The fundus uteri was found covered with small fibroids, varying from the size of a walnut to that of a marble. There were at least twenty different nodules. The bladder was adherent to uterus by false membranes. The broad ligament being tied off, and the bladder dissected free, a wire ecraseur was passed around the cervix, which made a pedicle, and was treated extra-peritoneally. The operation was accomplished without delay, and there was no shock. The wire was never tightened, and the first dressing was done on the sixth day. The wire was removed on the eighth day. On the tenth day, while cutting away a slough from the stump, I cut a good-sized vessel, which spurted hard enough to hit me in the face. I was much alarmed, and thought I had cut the uterine artery, and tried in vain to catch it with forceps. Finally, the bleeding was stopped by pressure with absorbent cotton.

The patient made an excellent recovery, and went home in five weeks, well. Although the part of the cervix inclosed in the wire was crushed, yet little or no pus was seen during the whole convalescence.

CASE XI. The patient, a married woman forty-four years old, was sent to me by Dr. S. W. Torrey, of Beverly. She first noticed the tumor ten years ago. Catamenia had always been profuse, and had increased during the last year. She suffered constant pain on the right side, and had lost much flesh during the last year, and had become pale, nervous and sleepless. She looked like a very sick woman.

A solid tumor extended to umbilicus, and moved with the cervix.

The operation was done, March 2, 1893, at Dr. Torrey's hospital in Beverly. The patient was in the Trendelenburg position. The tumor proved to be a fibroid, about the size of a five months' pregnant uterus. There were several small tumors growing from the large one. One tumor, about the size of an egg, had become embedded in the abdominal wall,

and was so bound by inflammatory products as to require a very difficult dissection for its removal. Another nodule had become encircled by a cord of intestine; the two were so firmly adherent that it was impossible to dissect them apart without injuring the intestine; so the tumor was sliced off, leaving a portion attached to the intestine. The bladder was dissected from the large tumor, and a rubber ligature was passed around the cervix uteri, which formed a large pedicle and was treated extra-peritoneally. A small, multilocular cyst was found, firmly imbedded in the broad ligament. This was laid open, and drained. The ovaries were not removed.

The patient made a rapid recovery. The temperature and pulse remained normal. The stump was first dressed on the eighth day; the wound healed by first intention. Dr. Torrey removed the rubber ligature on the twelfth day. There was considerable sloughing and pus about the pedicle, but it granulated rapidly. The patient returned to her home on April 5th, one month after the operation, with a granulating pedicle wound. She had some sleepless nights and mental disturbances, which gave rise to anxiety for a time; but this passed off, and may have been due to iodoform gauze dressing. April 18th, six weeks after the operation, the patient was up and about.

The above are not selected cases, but include all the cases I have ever done.

HOW SHOULD THE GENERAL PRACTITIONER DEAL WITH STRANGULATED HERNIA?[1]

BY ARPAD G. GERSTER, M.D.,
Professor of Surgery in the New York Polyclinic, Surgeon to the German and Mt. Sinai Hospitals, New York.

THE cardinal condition for the successful treatment of strangulated hernia is an early diagnosis. I wish to call attention to the frequency with which, during the prevalence of gastro-intestinal disturbances in the summer months, the presence of a strangulated hernia escapes the notice of the overworked practitioner. Within my own experience a number of such cases have occurred where the suspicion of intestinal obstruction first arose on the appearance of fæcal vomit. Indeed, the rule to examine the groin, during any intestinal disturbance associated with persistent vomiting, should be invariable. The presence of diarrhœal or solid stools should not militate against this rule, as we know that strangulation of a hernia will frequently occur during the progress of an enteritis. I have also seen fatal errors committed by the mistaking of a small, incomplete, but strangulated hernia for a mass of inflamed lymph-nodes. Finally, I remember the case of a young man suffering from recent gonorrhœa, who, while vigorously rowing, slipped and fell backward into the boat. He instantly noticed a severe pain, which he referred to one of his testicles. The family physician found an intumescence of the scrotum, and unhesitatingly diagnosticated orchitis. Unfortunately this diagnosis was insisted on for five days, in spite of the grave and unusual symptoms which accompanied this supposed orchitis. When fæcal vomiting had set in, herniotomy was performed. The gut was found to be gangrenous, and the boy died. In the presence of any tumor of the localities where herniæ are wont to appear, whenever persistent vomiting occurs, the benefit of the doubt should be given to the assumption of hernia. In those cases where the physical characteristics of hernia are uncertain, an exact diagnosis should be arrived at even at the cost of a probatory incision.

It would transcend the limits of a brief paper to discuss all the methods which have been successfully used for the reduction of strangulated hernia; but so much may be said, that in the same ratio as the safety of herniotomy has increased, have the limits of permissible taxis decreased.

In attempting taxis we must observe, that unless the patient can manage to be perfectly passive, general anæsthesia should be employed. The longer the strangulation has existed, the more unlikely it is that favorable conditions will be present. Local inflammation will have set in, rendering the patient intolerant of manipulation; and the presence of a more or less copious effusion in the sac will rob the operator of the chance of manipulating the gut itself, the effusion acting as an interposed elastic cushion. To replace the protruding gut our efforts should be directed towards the neck of the hernia.

The patient's posture is also important. Elevation of the pelvis will be useful. Another expedient may be mentioned by which I have prepared a strangulated hernia for reduction. I mean the application of intense cold in form of an ice-bag, or the evaporation of ether poured on the swelling, drop by drop. The local pain is markedly reduced, the intumescent parts shrink, and reduction often becomes astonishingly easy. Force should never be employed, as it will not accomplish replacement, but will often, especially when strangulation has for some time existed, result in serious damage to the gut. A case in point is that of a young man who contracted hernia, which immediately became strangulated. The physician in charge attempted taxis five hours after the occurrence. So much force was used, that when I saw the patient six hours later, the scrotum, penis and groin were extensively ecchymosed. On herniotomy it was found that the peritoneal covering of the strangulated gut had been ruptured and stripped up for a considerable distance. The convexity of the viscus was necrosed, and an artificial anus was established. The man died of septic peritonitis. Another adjuvant of reduction is the hypodermatic use of morphine which, however, should be employed sparingly and with discrimination and only as a preparatory measure for taxis. Otherwise it is apt to mask the more salient symptoms of strangulation, lull patient and physician into a false sense of security, and lead to incalculable mischief.

Permit me to call your attention to a point of great importance in estimating the urgency of a given case. Recently acquired and especially femoral herniæ are often characterized by great intensity of symptoms, mostly due to particularly firm constriction or strangulation. In these cases severe local pain is the rule, vomiting is incessant, and projectile, remissions are few or absent, and all the characteristics of the disturbance are decidedly *progressive*. The integrity of the gut as well as the resisting power of the patient are rapidly being undermined, and immediate relief is imperative.

To point out the contrast I shall mention a type of strangulation which is at first comparatively mild, and where the term "strangulation" is not strictly appli-

[1] Read before the Surgical Section of the Massachusetts Medical Society, June 13, 1893, and recommended for publication by the Society.

cable, as the stenosis of the viscus is usually due to sharp flexion on account of the repletion of the prolapsed gut with liquid or solid contents. Here the tumor is not so acutely painful as in the former class, vomiting is infrequent, intervals of several hours (up to twelve) occurring, the length of remission depending on the amount of food ingested. Ultimately a hernia of this kind will lead to general exhaustion and gangrene of the intestine, though the progress of the malady is much slower. Aside from gut I have found strangulated herniæ containing (twice) a gangrenous vermiform appendix, the ovary, an infantile uterus, a diverticulum of the bladder, and in one instance, imbedded in an abscess, a foreign body (a fish-bone), which had apparently perforated the intestine of the hernia prior to strangulation.

A safe and well-tested working rule in dealing with strangulated herniæ of recent occurrence is to attempt gentle taxis; should this not succeed, to propose to the patient taxis in anæsthesia with the proviso, that if this miscarry, herniotomy should be immediately performed. Before anæsthetizing, everything should be prepared for the operation in order to save time and to save the patient a second narcosis. In the presence of fæcal vomiting it is desirable to empty the stomach by gastric syphon before anæsthesia; otherwise the putrid matter vomited during operation may enter the air-passages, causing suffocation or septic pneumonia.

The choice of the anæsthetic will also deserve some attention, chloroform deserving the preference, especially where pulmonary or renal disease coexists; ether, on the other hand, being preferable in the presence of cardiac weakness. Where the patient is very much exhausted it might be found advantageous to eschew general anæsthesia, and to perform the operation under cocaine, ether spray, or even without local anæsthesia.

There are on record a certain number of cases of successful taxis in which the reduction of the strangulated gut was undeniably made possible by preceding puncture and evacuation of liquid fæces. I have never consciously employed this treatment, deeming it more hazardous than a well-performed herniotomy.

As regards the technique of herniotomy, I do not propose to dwell upon the minute details of the procedure, and shall content myself with emphasizing two points, the observance of which goes far in rendering the operation successful. The first of these points is the observance of the ***strictest cleanliness*** or ***asepsis.*** Difficult as asepsis is where the abdominal cavity is invaded, it is rendered much easier by the topographical peculiarities of a wound in this region, as long as the gut is not gangrenous. The operation is practically extra-peritoneal, and infection must be gross indeed to result in peritonitis. Careful shaving of all the pubic hair, a thorough scrubbing with soap and water, followed by rinsing with a strong solution of corrosive sublimate of the entire field of operation, are conditions easily fulfilled. Instruments and dressings, the latter consisting of any available textile fabric, can be promptly sterilized *ex tempore* by a short boiling in a watery solution of washing soda. The vessels found in any kitchen will answer perfectly. For sponges wads of absorbent cotton or of the dressing material can be used. The towels to be employed about the field of operation should also be subjected to a similar boiling. I may safely express the opinion, that a thorough scrubbing of the surgeon's hands with soap and brush in hot water, followed by careful scraping of the nails and a short immersion in a mercurial solution, will insure a very efficient degree of asepsis.

As to the incision, I have to say only, that it should be ample, the upper angle of the wound extending well above the inguinal ring. Bleeding vessels should be promptly tied, and the sac cautiously opened at a place where fluctuation is apparent. This precaution will insure against wounding adherent gut. The sac should be split well up to its neck and then the contents should be carefully examined *in situ.* Should gangrene not be present in the visible intestine it may still exist at the site of constriction. To permit of a safe inspection of the constricted part of the viscus the constriction must be relieved not by blunt attempts at liberation but by *dissection from without inward*, this being the second point to be emphasized. The old and classical method of dividing the constricting fibres from within outward under the guidance of either a finger-nail or a grooved director is dangerous, especially where the gut has been irremediably damaged by prolonged strangulation. A much safer procedure is the division of all confining fibres by the knife, wielded under the guidance of the eye. Injury to an abnormal epigastric artery will thus be easily avoided, or, should it be unavoidable, the vessel can be readily secured. As soon as the strangulation is relieved *and not before*, the gut can be gently withdrawn and examined; should it be found healthy it can be immediately replaced. If its appearance is doubtful a fillet of silk can be drawn through the mesentery and the wound covered with a wet dressing. Within six hours an examination should be made, and if the gut is then found healthy, it may be replaced. If gangrene is undoubtedly present and fæcal vomiting or other urgent symptoms do not compel the establishment of an artificial anus, the intestine should be left unopened. Often the gangrene is very limited; and in these cases the gangrenous area can be inverted, and the healthy visceral peritoneum brought together over it by a longitudinal row of Lembert sutures. Should it become necessary to establish an artificial anus, two things must be carefully seen to. First that the last trace of constriction has been relieved, and, secondly, that a dam consisting of a light packing of iodoform gauze, slipped into the peritoneal cavity around the gut, corresponding to the neck of the hernia, should prevent the influx of fæcal matter.

It would transcend the limits of this paper to discuss the question, "When should an excision of gangrenous gut be practised, followed by intestinal suture?" or, "When shall the establishment of an artificial anus receive the preference?" Furthermore, I will abstain from considering when and how a radical closure of the inguinal canal should follow herniotomy. In concluding these desultory remarks I shall say:

(1) In case of uncertainty give the benefit of the doubt to the assumption that an obscure tumor of the groin is a hernia.

(2) Be gentle in attempting taxis, and do not spend too much time over it.

(3) Be thoroughly aseptic in herniotomy, and divide the constricting bands freely, not with the probe-pointed knife cutting from within outward, but with the scalpel under the guidance of the eye, from without inward.

THE oldest man in Kentucky died July 9th. He was born in Virginia in 1776.

A METHOD FOR APPLYING PRESSURE TO THE SEAT OF A FRACTURE FOR THE PURPOSE OF BRINGING THE BONY FRAGMENTS INTO ACCURATE APPOSITION AND RETAINING THEM THERE UNTIL CONSOLIDATION HAS TAKEN PLACE.

BY GEORGE H. MONKS, M.D.,
Surgeon to Out-Patients at the Boston City Hospital.

ON January 25th, L. P. H., a strong and well-built man, 35 years of age, applied at the Surgical Out-Patient Department of the City Hospital for treatment of an injury to the right forearm, sustained two days previously. An examination revealed fracture of the radius, near the middle of the bone. There was anterior displacement of the proximal fragment and posterior displacement of the distal.

On manipulation free mobility of the fragments, and bony crepitus were marked. There was considerable difficulty in keeping the fragments in position, — a circumstance probably due to the small size of the bone at this point and its depth from the surface.

Pads were carefully applied upon the arm, — one in front and one behind the fracture; and while extension was made upon the hand, a plaster-of-Paris bandage was put on over the pads, and reaching from the roots of the fingers to the bend of the elbow. At the end of six days this bandage was removed with great care and the seat of fracture gently examined. The fragments were found out of place, as before, and there had been no apparent attempt at union. Fresh pads with anterior and posterior wooden splints were then applied, only to be removed again within twenty-four hours on account of pain caused by the pressure which it was necessary to exert upon the pads, in order to keep the fragments together.

While I was holding the fragments in place with my thumbs and fingers, and was considering what means, yet untried, would be most effective in keeping this troublesome fracture permanently reduced, I was struck with the ease with which the parts could be held in perfect apposition by the thumbs and forefingers alone, and I said to my assistants, Mr. S. Y. Wynne and Mr. A. B. Duel, that, undoubtedly, the best appliance for this case would be one in which a pressure could be brought to bear on the seat of fracture, as nearly like that exerted by digital pressure as possible.

That same day these gentlemen suggested a plan which they put into service in this case with the most satisfactory results, and it is for the purpose of calling attention to this method of theirs that I report its trial.

A turn of bandage was loosely placed about the arm at the seat of fracture, and its upper end was then held by an assistant vertically upwards, the arm being horizontal. This served as a landmark to the fracture. With his other hand the assistant made extension by gently pulling on the hand of the patient. The hand and forearm were then wrapped in a layer of sheet wadding, and a light plaster-of-Paris bandage applied. While the plaster was still soft, pressure was made at the seat of fracture with the thumbs and fingers, as is shown in Fig. 1, the forearm being kept slightly supinated. Under this pressure, which was very slowly and gently applied, the fragments which, up to this time had been out of place, could be felt to slide back into proper position. The pressure was kept up until the plaster had hardened, when the digital depression was, of course, permanent. (Fig. 1.)



FIGURE I.

The pilot-bandage was then cut away, and the patient, who declared that his arm was more comfortable than it ever had been since the date of fracture, was sent home with his arm in a sling, and told to report the next day.

When he returned a fenestra was cut in the bandage, as shown in Figs. 2 and 3. This was done for the purpose of allowing inspection from time to time of the region of the fracture.

The pressure exerted by the depressions in the plaster appeared to have had no effect whatever in stopping the circulation of the parts, and the fragments seemed to be in perfect apposition. (Figs. 2 and 3.)

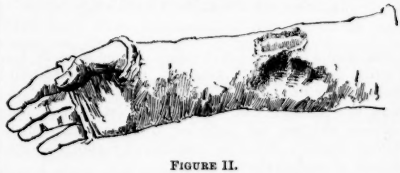


FIGURE II.

Twenty-one days after the plaster had been applied it was carefully removed and the union found to be firm and the apposition of fragments apparently exact. There was a narrow annular callus about the seat of the fracture. The plaster was re-applied, as a precautionary measure, and, in a short time, again removed,

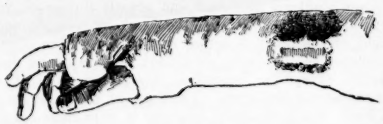


FIGURE III.

and the patient directed to use the hand. Improvement continued, and the result was in all particulars, satisfactory.

[1] Read before the Suffolk District Medical Society, April 29, 1893.

I knew that the bone would probably have united readily enough under the old form of treatment, but with these hitherto uncontrollable fragments held in exact apposition by the depression in the plaster, I felt sure that the union would be accomplished with the minimum of deformity and the result, as it proved, justified my expectation.

This same method of using the depressed plaster, instead of pads was employed with excellent results in two cases of Colles' fracture at the Hospital; but, as this is a fracture which, after impaction has been broken up, is usually satisfactorily treated by ordinary splints, or, as some surgeons claim, by no splints at all, I do not use these cases as evidence in favor of the method here spoken of.

The plan, as carried out in the first case, was certainly highly satisfactory, and I see no reason why it should not be of use in certain fractures in other parts of the body, where the fragments cannot be kept in position by the ordinary methods now in use. Dr. T. A. Deblois tells me that a modification of this method has been occasionally used in treating fractures of the nose; but at the time the cases here reported were treated, I was not aware of its ever having been previously used in any case.

One of the attractive features of this method of applying pressure is that the fracture can be reduced after the bandage has been applied, and the fingers and thumbs can thus regulate the degree and distribution of the pressure to a nicety.

It seems to me that Messrs. Wynne and Duel have suggested a new and simple expedient which may occasionally be found of great use in the treatment of certain troublesome fractures after the ordinary means have failed.

Clinical Department.

CASES OF PNEUMOTHORAX.[1]

BY H. F. VICKERY, M.D.

ON May 24, 1892, I was called to see Miss D. L., a rather delicate girl of nineteen, who had suddenly become very ill. As to the family history of the patient, her mother was robust; her father was not vigorous, but yet not suffering from any particular chronic disease; one sister had died of diphtheria, and an aunt of consumption.

Twelve days before I saw her, my patient noticed that she had to clear her throat oftener than usual; but she had no cough. Ten days later — two days before my visit — she had a slight hæmoptysis, followed in a few hours by a profuse one. She was apparently recovering from this as rapidly as could be expected, when in the night of the 23d–24th, she became suddenly cyanosed, and greatly distressed for breath. When I arrived, the heart was feeble and rapid, and demanded active stimulation. The chest presented the following condition: The left lung was normal, except for excessive, vicarious action. The heart was not displaced. The base of the right lung in front was tympanitic, and over it very little respiratory murmur was to be heard; but the heart-sounds were unusually audible in this region. The patient was too feeble to allow of examining the back. Dr. E. N. Whittier now saw the case in consultation with me. He also was struck by the remarkable transmission of the heart-sounds to the right, without any evidence of a consolidated lung. Nevertheless he concurred in a probable diagnosis of right pneumothorax, and he joined me in urging the removal of the patient to the Massachusetts General Hospital.

Accordingly, she was transferred thither, and entered Dr. Whittier's wards; where he very kindly invited me to see the girl with him, once more, in the afternoon of the same day. Hoping to relieve the dyspnœa, we inserted an aspirating needle in the lower part of the right chest. It entered a cavity, in which it could be freely moved about, and it is probable that we drew some air out of the thorax; but no fluid was obtained, nor was the patient rendered any less uncomfortable.

She did, however, benefit greatly by inhaling the oxygen which was ordered for her immediately upon her entrance to the hospital. It was given more or less continuously for the first twenty-four hours, and I think no one around her bed could doubt that it saved her life, at least for the time being.

After considerable improvement, however, fresh hæmorrhages occurred, the cough increased, tubercle bacilli were found in the expectoration, and on August 13th, after three months' illness, she died of pulmonary tuberculosis.

Around this case I should like to group a few others, some of which I have had the privilege of observing, but none of which have been under my own care. With one or two exceptions, to be hereafter noted, they have all been in charge of the Visiting Staff of the Massachusetts General Hospital, to whose courtesy I am indebted for permission to report them. It should be premised that it is not my endeavor to write a monograph upon the subject of pneumothorax, but merely to bring out a few interesting points.

One striking fact about the case just narrated was the abrupt onset of the trouble. The patient had had no real cough and only for ten days a slight hacking, when the hæmoptysis occurred, to be followed within forty-eight hours by the pneumothorax. A still more remarkable event is recorded by Lundie in the *Edinburgh Medical Journal*.[2] A lawyer's clerk, aged twenty, with a tubercular family history, but in apparent health, while sitting quietly at home after dinner, was seized with sudden severe pain in the left chest, and obliged to take to his bed at once, with left pneumothorax.

As regards etiology, my patient is an example of nine-tenths of all cases. Tubercular infiltrations, breaking down, open a communication between the bronchi and the pleural cavity. The tubercular focus need not necessarily be on the surface of the lung, however, for it may be connected with the pleural space by a sinus.[3]

The next most common cause is empyema, ulcerating into the lung. This was probably the mode of origin of a case of Dr. Gannett's: Case 2, Elizabeth S., whose father died of probable phthisis, had influenza in January, 1890, followed by pneumonia; after which it was said there was fluid in her chest. In May, she became much worse and had profuse expectoration, raised suddenly by mouthfuls. She was brought to the hospital June 7th, when the left chest

[1] Read before the Suffolk District Medical Society, April 29, 1893.

[2] American Journal of Medical Sciences, February, 1892.

[3] Powell, quoted by Donaldson, Pepper, iii, p. 575.

presented the characteristic signs of amphoric breathing and metallic tinkling.

That violent exertion is often the immediate cause of pneumothorax is, it seems to me, illustrated by the fact that four times as many men as women suffer from it. In the first case reported in this paper, its development may have been precipitated by the coughing occasioned by the hæmoptysis, or by violent vomiting, which repeatedly occurred after the blood appeared. Strümpell has seen it after hard rowing, and after hanging out clothes. Child-birth sometimes causes it. A phthisical patient who was in Dr. Gannett's wards last October, was attacked while laughing. A painter (Case 3) also tuberculous, aged thirty-four, who was under the care of Dr. S. L. Abbot in April, 1882, when I was a house-pupil, was carrying either a ladder or a sign-board, when he experienced the peculiar sudden pain and dyspnœa.

Another man, (Case 4), Fred P., aged twenty-two, who worked in a stable, and who came under Dr. Whittier's care, had been well till one month before he entered the hospital, when he began to have a slight cough, with scanty, yellowish-white expectoration. These symptoms had lasted three weeks when, as he was engaged in washing carriages, left pneumothorax developed.

His case, by the way, illustrated the capacity of the thoracic cavity, which a valvular pneumothorax is calculated to test very thoroughly. Upon his being tapped with a trocar and canula, to which a rubber tube was fastened, with its other extremity under water, a considerable volume of air rushed out, and also sixty ounces of serum. Eighteen days later, seventy-six ounces were removed.

In Dr. Abbot's case, also, the distention became enormous, driving the heart under the right nipple, and urgently demanded interference. It did not get it, because the patient's friends forbade any "operation" — so that a sudden syncope ended the poor fellow's sufferings.

While in the vast majority of cases, pneumothorax ensuing upon over-strain is really due to an antecedent pathological condition,[4] it exceptionally occurs in those who were perfectly healthy before and who make a good recovery. This was true in both of Strümpell's cases, already referred to.

Another cause of the condition is traumatism. A perforating wound of the thorax may produce it; but it is much more likely to do so if the lung itself is pierced.[5] It must have been in this way that the two cases quoted by Osler [6] were caused by a hypodermic needle. Thus also contusions, without external wounds, may occasion pneumothorax; or old pleural adhesions, being wrenched asunder, may tear into the pulmonary parenchyma, as shown by Professor Zahn of Geneva.[7]

Often these traumatic cases do well.

Matt H. (Case 5), aged twenty-two, born in Finland, came into Dr. Fitz's wards June 27, 1891. Two weeks before, a knife-blade had been thrust into the upper right front. There were tympany, absence of respiration, and depression of the upper limit of hepatic dulness, with displacement of the heart to the left. There was no interstitial emphysema. He was discharged, well, at the end of two months.

[4] Matas: Hare's System of Therapeutics, ii, p. 683.
[5] Niemeyer: i, p. 277.
[6] Osler: p. 594.
[7] Schmidt's Jahrb., August, 1891.

Michael V. (Case 6), a Dane who could speak no English, entered the hospital May 27, 1891, with a small bruise low down in the right axillary region. There was much air in the subcutaneous tissues; and there seemed to be air and a small amount of fluid in the right chest. He was discharged, well, in fifteen days after entrance. At no time could any fracture of the ribs be made out.

As a rule, no abnormal condition causes so great a displacement of the heart as pneumothorax. Yet in neither Case 1 nor Case 2 was the heart dislocated. The same is true of Case 7, Annie G., sent in by Drs. Fifield and Fitz, and under the care of Dr. Whittier. When seven months pregnant, she had pneumonia, miscarried, and was delirious for five weeks. She entered complaining of cough with expectoration, and tenderness in the left axilla. The heart was in its normal place. No metallic tinkling nor succussion sound could be obtained, but tympanitic resonance extended everywhere below the fifth rib in the left axilla and the same level in the back, with very feeble, distant respiratory murmur. Over this same area it was noted that the heart-sounds were universally audible. This patient was discharged a month after coming in, improved, and wrote, twelve days later, that she was "gaining fast," and able to do a little work.

For the heart's remaining stationary, an easy and natural explanation is that pericardial adhesions have already been formed, in these cases, before the pneumothorax occurs. In Lundie's case, above-mentioned, the heart was pushed backwards.

Why heart-sounds should be occasionally transmitted through spaces filled with air, as in cases 1 and 7, is not very clear. It might be attributed to conduction along the ribs; but if so, it does not require any great intra-thoracic pressure, for there was evidence of none in the first patient. Possibly the concave thorax, with the air beneath it, acts as a sounding-board.

With regard to the detection of pneumothorax, I have been much impressed by the latency of some cases, and the comparative comfort some individuals enjoy, while the victims of this serious disorder. If only one's suspicions are aroused, however, it is seldom difficult to make a diagnosis.

Cornelius D. (Case 8), a hod-carrier, twenty-eight years old, entered the hospital May 28, 1887. He was a patient of Dr. Shattuck. For a year he had had a cough, and some pain in the lower part of the left chest, but he had worked till two weeks before entrance, when a sudden aggravation of the pain drove him to bed. He had noticed a swashing sound in his chest for six weeks before he took to his bed — that is, he had been working as a hod-carrier for six weeks while suffering from hydro-pneumothorax. On one occasion, by the way, just after this patient had been tapped, a bubbling sound could be heard at the end of inspiration, between the lower angle of the scapula and the vertebral column, suggesting that the hole in his lung was situated, not at the apex, as usually happens, but low down.

The most remarkable instance of latency in this disease, of which I am aware, is familiar to a great many, for it is related in Flint's "Practice of Medicine" (Ed. 1881, p. 154). An accountant, eighteen years old, had had a slight cough for a year, but so slight that he had thought nothing of it, and regarded

himself as being well, when he was taken ill with acute pneumonia, and was found to present, in addition, the signs of hydro-pneumothorax. He lived four days. An autopsy entirely confirmed the diagnosis and it revealed, beside, several phthisical cavities in the apex opposite the pneumothorax.

In the matter of prognosis, the phthisical cases are very apt to die in a month or two, but still they need not abandon all hope. Fräntzel has lately emphasized this point.[8] It is also illustrated by a case of Dr. Cutler's (Case 9). Patrick S., age twenty-three, entered the hospital July 23d of this year. He had had a "kind of a cough" for six months, and had lost sixty pounds. There was pneumothorax on the left side, and tubercle bacilli were present in the sputum. Yet, at the end of a month, he had gained seven and a half pounds, could climb stairs very well without much dyspnœa, and left the hospital "much improved."

The value of tubercle bacilli as a factor in prognosis is self evident; but a negative result of a search for them will not, of course, enable us to exclude tuberculosis. Thus (Case 10) Wm. H., who came under Dr. Shattuck's care March 9, 1891, with pneumothorax, had his sputa examined twice for bacilli, and none were found; while at the fatal termination of his disease the autopsy revealed a cavity in the upper lobe on the affected side.

As to treatment, for the most part it is symptomatic. Morphine is often necessary. And oxygen may be invaluable. Aspiration must be employed with some discretion. We can not afford to delay when the intra-thoracic pressure threatens to paralyze the heart, and on the other hand we must beware lest too zealous efforts cause a re-opening of a newly-healed communication between the bronchi and the pleural cavity.

Reports of Societies.

MASSACHUSETTS MEDICAL SOCIETY. SECTION IN SURGERY.

C. L. SCUDDER, M.D., SECRETARY.

MEETING, Tuesday, June 13, 1892, DR. C. B. PORTER in the chair.

DR. A. G. GERSTER, of New York City, read a paper on

HOW SHOULD THE GENERAL PRACTITIONER DEAL WITH STRANGULATED HERNIA?[1]

DR. C. C. ODLIN, of Melrose: It has always seemed to me that he who participates in a public discussion, even if he be devoid of the necessary oratorical accessories to hold the attention of his audience, should at least have a thorough knowledge of the subject under consideration. This I must at once disclaim. It has seemed to me perhaps that the only reason why Dr. Porter asked me to take part in this discussion was that the words of wisdom which we have heard might shine more brilliantly in comparison with my ignorance; but if that be the case I shall endeavor to forgive the doctor, and try to make some remarks on the interesting paper which we have heard from Dr. Gerster upon how strangulated hernia should be treated by the general practitioner from the standpoint of a general practitioner. I remember very well, indeed, with what a sinking of the heart I was in the habit in my early days of responding to a call to see a person afflicted with irreducible hernia. I revolved in my mind the different coverings of the hernia — integument, intercolumnar fascia, fascia propria, etc.,— and by the time I got to the house those were a muddle in my brain. That was all nonsense: I know now it was, but I didn't know it then. Had I known it then, I should have been saved a good deal of mental anxiety and worry. It seems to me that when the general practitioner is called to a case of hernia he should go to that case with just two ideas in his mind, one is to reduce the hernia without operation if possible, the other is to reduce that hernia any way. Of course, we all understand that taxis is the first thing to attempt. Taxis, it seems to me, should not be prolonged, and should not be severe lest the subsequent bruising may interfere with the recovery of the patient if operation be finally necessary. Taxis may be assisted very much by the use of ether and the ether spray; and it seems to me also by placing the patient in the Trendelenburg position. If my memory serves me aright, this was first attempted by Dr. William J. Allen, a practitioner at White River Junction, Vt. He mounted the bed, lifted the hips and body, and allowed the head and shoulders to rest on the bed. The gut returned with that gurgle which is so pleasant for the practitioner to hear.

If taxis is unsuccessful, of course the question of operation at once comes up. I want to speak of three points which have occurred to me in the cases upon which I have operated. One is the point Dr. Gerster has spoken of: to be sure of the diagnosis. Quite a number of years ago a gentleman who was a patient of mine a long time, came into my office and showed me a very small bunch about the size of a pea in the left groin. I examined that as carefully as I could, and told him I was unable to determine whether it was the commencement of a hernia or whether it was an inguinal gland. As this gentleman was going into the city every day, I asked him to call upon a surgeon who made the subject of hernia a specialty. A few days afterwards he came to my office and said he had visited the gentleman, and had been told it was an enlarged gland and that no truss was necessary. Nearly a year later, while getting out of his buggy, this little bunch broke through, forming a protusion about the size of a hen's egg. I was summoned immediately, and found it impossible to reduce it. As I was called in the late evening, I packed the tumor in ice, thinking the cold, perhaps, would enable me to reduce it when morning came. As it was impossible to do so, I operated the next morning. There was no difficulty at all in returning the hernia; but the gentleman sank and died, apparently of exhaustion. That is a case in which I have felt, had I been acute enough to have distinguished that hernia in its commencement, a human life might have been saved.

Another point I wish to touch on may be spoken of perhaps in connection with another case. I was asked to see a woman about thirty years old afflicted with strangulated hernia. I advised immediate operation, and operated. The bowel moved freely after the operation, but the woman commenced to vomit; and she died, I think, on the fourth day. It seems to me, in the light of later experience, that the proper thing to do in a case like that is to perform laparotomy, feeling

[1] See page 61 of the Journal.

[8] Schmidt's Jahrb., December, 1891.

that there might be some obstruction farther up the intestine.

The last point that I will speak of is that I do not think any one should hesitate to operate, no matter how unfavorable the conditions may seem to be. Some time ago, one hot day in July, I was asked to see an old woman of Irish extraction, about seventy years of age as near as I could tell. I found her in a hovel of two rooms, surrounded by pig-pens; hens were kept in the back part of the house. The room in which she lay was infested by hen lice. She had been vomiting four days at the time I saw her. I found a hernia about the size of the two fists. It seemed, certainly, as if no operation could benefit that woman; but I thought it my duty to give her what chance there might be. I endeavored to render her as aseptic as possible, etherized and operated. On getting down to the constriction, I found, in order to return this enormous mass, I had to cut to such an extent when the bowel was returned and the finger was removed, that the whole contents apparently of the abdomen poured out again. I never had such a condition before, and hardly knew how to proceed. I took a needle and silk, and sewed up the constriction, getting tissue from the internal iliacus muscle in which to catch my needle. The old lady was out in about a fortnight feeding her pigs; and since that experience I have felt that there are no conditions, no surroundings so bad that any physician should hesitate to give any patient the benefit of an operation.

It has seemed to me that there is no class of cases in which we have our surgical landmarks so clearly defined as in hernia; and I believe that any general practitioner with a cool head, fairly steady hand accustomed to the use of the surgical knife, and a clear conscience should not hesitate to operate upon a case of strangulated hernia, and that it would be criminal to allow a patient to die because a professional surgeon was not within reach.

Dr. William Bass, of Lowell: I appreciate very much the paper we have heard to-day, and there is not much left for me to say. The ground has been very well covered. In that paper it seems we have a right to infer that we are all experts in the matter of surgery and in operating on strangulated hernia, which unfortunately is not the case. I will admit that our school educates every young man in a manner that he should be competent to deal with strangulated hernia; but there are some of us a little timid, and we are not all located near the city or near some expert man in the matter of surgery, and we might have to rely, in some back town or some wood-chopper's camp, upon ourselves. Now what will such a man do? Of course, when he undertakes the practice of medicine and surgery, he assumes that he is competent to attend to the business. Now then, of course, he understands the anatomy of the case and has seen the operation done; but he never was called upon to do it himself. This is his first opportunity; and what shall he do? Perhaps he may be by candle-light in a hut. He has got a difficult task for himself; but there is only one thing for him to do. He cannot retreat. He must operate if he cannot reduce it with taxis and under the influence of ether; consequently he makes the best of it. If he has nothing but a pocket-case, he proceeds with that; and in these times he must make his patient as near aseptic as possible and himself and the surroundings, which might be a difficult matter to do. Well, of course, he must operate under the circumstances; and if he is of the character of a man I met the other day, he will do very well. I will mention the case, though it is a little off from the subject. I was notified that I was wanted to bring my tracheotomy tube, and I hurried as much as I thought necessary; and when I got there I found the young doctor in attendance had already operated. As luck would have it he had left his pocket-case at home. Some man about the house had a pocket-knife, and that was dull. They sharpened it; and the doctor took the pocket-knife, and opened the trachea and found he had no tube. They found a piece of rubber tubing, and that he inserted. Now then, if our country doctor is of that character, he will get along very well; and, of course, a general practitioner must of necessity, if he is going to make a success, be an all-around man, be a man prepared for emergencies. A specialist, if he is not a very smart man, can make a good practitioner of himself in some specialty. He has not so much ground to go over; but a general practitioner needs to be an extra smart man. As I said, I had not much to say; I wanted to help out this man in the backwoods a little. Now then, after he has operated, if he finds the gut gangrenous, about the best he can do is to make an artificial anus; and at some future time some man of more skill, or with assistance, can resect and remove the portions of the gut that are gangrenous and bring the intestine together and make a whole alimentary canal again.

Dr. H. H. A. Beach, of Boston: I have listened to Dr. Gerster's paper with the greatest possible interest. In twenty-six years' work in private and consultation practice and in hospital service I have seen most of the emergencies, most of the conditions that Dr. Gerster has spoken of. One great thing that has impressed itself upon me is the importance of an early diagnosis, an avoidance of excessive taxis — just the two main points Dr. Gerster has laid most stress upon; and I should hope he would have the thanks of the Society for laying aside the traditions of obsolete surgical work and really bringing the technique of the operation for herniotomy up to the standard of modern abdominal surgery. The essential points, are early diagnosis, avoidance of excessive taxis and prompt operation, restoration of the gut to the abdominal cavity without pulling and hauling, which can only be done by free and adequate surgical incisions, and the most complete antisepsis that is possible. It seems to me he puts the operation right on a line with the prompt and adequate treatment which can be applied to extra-uterine pregnancy and to appendicitis. Prompt action is the only thing that insures success. The disasters of the three diseases may be nine times out of ten attributed to delay in diagnosis, delay in operation, insufficient antisepsis and overthumbing, manipulation of the parts.

For one, I desire to express my warmest thanks to Dr. Gerster for his very interesting paper and the way he has put it before the Society for the general practitioner.

Dr. John Homans, of Boston: I am sorry to say I did not hear Dr. Gerster's paper, so that I cannot speak of the points he made. The subject, as I read it, was how should the general practitioner deal with strangulated hernia. I suppose the general practitioner in a case of strangulated hernia has got to act according to his ability. He must, if he is capable of

doing it, operate and return the intestine if it is, in good condition, and try to cure the hernia at the same time. It seems to me that a general practitioner in a city could perfectly well avoid the case by sending the patient to the hospital or sending for a surgeon. In the country, where a man is more on his own resources and develops more in the operations than a man does in the city, he has got to face the music; and if he has a gangrenous bowel, he must excise it if he can do it. The general practitioner in the country is especially skilful, it has always seemed to me, in the treatment of fractures. He gets very good results. I do not know whether this paper goes into the general treatment of hernia. Certain cardinal points about the treatment of hernia are almost self-evident to one who has had experience. We get cases in the hospital after some one has squeezed them so that they are gangrenous both by delay and contusion. Indeed, I have seen a hospital surgeon squeeze a hernia with great force, and he has asked me to put my hands outside of his and squeeze; but the result was fatal. You have got to have a general practitioner, a good one and of some intelligence, to treat these cases; and if in the country he must meet all the emergencies, if in the city he can avoid them. I have no doubt the subject has been well described and the emergencies dealt with by Dr. Gerster, and I will not go into the general treatment of strangulated hernia. One of the most remarkable cases I know of strangulated umbilical hernia was one where Dr. Richardson removed some nine inches of the bowel, sewed the ends together, and the woman I think had a movement of the bowel within ten hours. You cannot expect every general practitioner to make an excision of the bowel with the skill of Dr. Richardson or of Dr. Gerster; but he must be prepared to meet emergencies, and particularly to recognize the fact that he must not lose time by taxis, particularly forcible taxis at the risk of doing a great deal of harm.

DR. A. T. CABOT, of Boston: I was unfortunate in not hearing the first part of Dr. Gerster's paper in regard to taxis, and very probably he made a point I should wish to make — that one can be much more free with taxis in the very commencement of a hernia when it is new than later. In fact, I should almost say it was best to forego taxis altogether in a distinctly strangulated hernia, that had been down more than four or five days, in order to avoid the possibility of rupturing the very much weakened gut by the taxis. I had a case that illustrates how easily one of these guts can be ruptured. It was in a patient who came to the hospital with a hernia that was quite reducible, but with difficulty. He had had it a great many years and was in the habit of reducing it. This time it had been down a little longer and went back hard. Just afterward he was seized with violent pain, and brought to the hospital twenty-four hours later. I did immediate laparotomy, but the patient was almost moribund when we began, and lived only a few hours. The condition was a minute rupture the patient had made on his own gut in reducing it.

I was very much interested in what Dr. Gerster pointed out as a necessity for great caution in opening up the neck of the sac in cases which have been strangulated some little time, in which there is a strong possibility that the neck of the sac has been so nipped that there is a weakened line around the neck of the hernia where the gut is ready to give way. It is in those little herniæ, particularly at the femoral ring, where the danger is greatest. In large herniæ there is less danger of cutting at the constricting point than in the small herniæ. The gush of fæcal matter I have seen once or twice when the neck of the sac was divided. It is immediate and difficult to handle unless you have a large enough opening already to allow of the free escape of the fæces outwards.

It seems to me his recommendation that in all these cases the division should be from without inward is very pertinent, and it is one I shall put in practice more than I have hitherto done. I had a case a fortnight ago. The result was unfortunate. The hernia had been strangulated eight days and the gut was gangrenous. In that case, I opened up the neck in the way he describes, making really a laparotomy, cutting down above the neck of the sac and incising through the neck rapidly and pulling the gut outside at once. I secured it out by drawing a strand of iodoform gauze through the mesentery to hold it back, and surrounded that iodoform gauze in the manner he describes, but the patient lived only two days. She was an old woman and very much exhausted. I think the point he makes is a very good one and I shall certainly be encouraged by his precept to follow it up more fully, coming down on the neck of the sac with the eyes upon it, so that if there is a little line of gangrene you can at once see it and treat it with consideration.

DR. C. B. PORTER, of Boston: I don't think it is customary for the chairman to make remarks upon the subject of the paper, but there are one or two things I should like to speak of. Dr. Gerster considers the question of the action of the general practitioner, and lays great stress upon the highly antiseptic condition to which the patient and the operator should be brought, and it seems to me if I can say just one word in regard to what a country practitioner did in a case I afterwards saw, it would help perhaps some one placed in the same unfortunate circumstances. A patient met with a railroad injury, which produced a compound and comminuted fracture of the patella. He was at a distance from a surgeon, but he was under the care of a good common-sense man, who understood details if he could not carry them out. He had no antiseptics by which he could render anything sterile, but he had boiled water and soap, and he rendered the parts thoroughly aseptic by scrubbing with boiled water and soap and scrubbing his own hands, and he laid open the knee-joint as for incision, put the flap back into place, and sent the patient to the hospital with the wound practically healed. He had none of the necessary things about him to do this operation, but he did it practically aseptically by getting his own hands clean, the field of operation clean, and operating under these circumstances. I certainly was impressed in connection with the paper with regard to the stress laid upon early operation and upon the use of slight taxis. I do not want to say anything further on that myself. It seems to me that there is where the general practitioner fails more often in dealing with this subject than in any other, in the first place, in not recognizing the fact that a strangulation which will not take care of itself must have assistance; therefore the sooner it has it the better. I think it has been very aptly compared by Dr. Beach to appendicitis and to extra-uterine pregnancy.

DR. GERSTER, of New York: I shall have very few things to add to what was said by myself and the gen-

tlemen here who were kind enough to join in the discussion, and I see only one thing noted down that I believe is worth while bringing up once more, and that is the remark made by Dr. Odlin. He said, if I understood rightly, if he had done a herniotomy and the patient continued to vomit that he would not hesitate to do a second laparotomy. I believe that that is a suggestion worthy of attention, and a suggestion along the lines of which surgeons have already tried to walk; but let me tell you that they have not always been successful. I have seen a number of cases where the intestine was found to be in a normal condition, where it was reduced, where no complication arose during the course of the operation, where we expected immediate relief from the vomiting. It is a charming thing to see, in a man who was vomiting every two or three minutes, the moment the constricting band is divided all these disagreeable and distressing symptoms cease. Now when we see that this is not the case, there is grave trouble present; and I am sorry to say it is very frequently a trouble which is not within the pale of a surgeon's help. It is very distressing after we have performed a good operation and made a favorable prognosis, which is the most disagreeable part of the whole thing, to see the patient go on vomiting as if no operation had been performed, and ultimately go from bad to worse and die; and it is worth our while to know why that is the case.

Do not let us misunderstand each other. I do not mean cases in which the surgeon performed the herniotomy correctly as far as the technique of the operation is concerned, where the strangulation was relieved, the bowel replaced, where the surgeon has infected the wound and caused a septic peritonitis. I mean something quite different, and to explain to you what I mean I shall illustrate by a case which I am sorry to say occurred to me only recently, and the memory of it is imbedded in my mind in deep letters. The hernia had been strangulated a long time and there is the essential part, the longer the strangulation has existed the more probable this occurrence, and it illustrates the serious effects of long-continued strangulation — not only upon the strangulated gut, not only upon that part of the strangulated gut which is actually constricted, but upon the entire intestinal tract and upon the entire system of the patient. You may find a case of that kind and the gut not gangrenous, the obstruction in the gut due (as was in this case) to the presence of a square piece of potato which was within that portion of the gut which had left the abdominal cavity and by its mechanical presence obstructed the flow of the intestinal contents. The walls of the gut were normal, slightly congested, but no signs of gangrene; and I believe gangrene would never have come in that case. He died, not from strangulation but something else. The hernia was cut down upon, that hard body was found in the knuckle of gut, crushed between the fingers, put out of the way, and the moment that was done the gut slipped back so that I had to catch it in order to have a chance to examine it. I withdrew the gut without difficulty, showing there was no real strangulation. It was an obstruction by flexion caused by this foreign body. I mean by flexion that condition you observe in a rubber-tube which you bend. You see a knuckle forms and no amount of pressure will force liquid through that bent portion of the rubber-tube. Just as the rubber-tube is bent and occluded so the intestine is bent and occluded and the symptoms are practically those of obstruction. The intestine was examined, found to be normal and reduced. I withdrew from the family giving a favorable prognosis; and I was very much set back when I came the next morning and heard the patient had been continually vomiting fæcal matter as before the operation. The obstruction had lasted five days. I said to myself, in the presence of these facts, knowing that I had reduced the trouble within the hernia, there must be some cause of obstruction higher up than the hernia was situated. The hernia contained a part of the small intestine, what part I could not say then. Seeing the patient continually vomiting matter that was feculent, liquid material, I at once suggested that we open the abdominal cavity, expose that portion of the gut which was just above the inguinal region, if possible hunt up the knuckle that was contained in the hernia and then try to find the cause of this obstructive condition. This was agreed to, and the hernial aperture was reopened, incision extended, and I satisfied myself that there was no portion of the intestine that had again entered into the wound. No radical operation was performed, and the contiguous portion of the intestine was easily found and exposed. I failed to find any signs of constriction; but I noticed that although there was no constriction present, that portion of the small intestine leading away from the knuckle that occupied the hernia was shrunken up and empty, whereas that portion leading to the knuckle from above was distended enormously, contained a large quantity of gas and liquid fæces. The walls of the intestine were very much thickened, œdematous, the mesentery was congested, (intensely so), as was the entire intestine; and although I could not find any constriction, I saw how far the trouble extended down to the knuckle contained in the hernia. Now there were all the symptoms of obstruction of the intestine and no cause for it whatever. I enlarged my incision, and brought out more of the intestine; as far as I could follow, I found this identical state. I said, "I never have seen anything of this kind"; replaced the intestine; closed the wound; and fell back upon symptomatic treatment in the good old-fashioned way, which resulted in the good old-fashioned way — in the death of the patient.

Post-mortem, we found that in this case the only cause of the persistent vomiting of the patient and of his ultimate exhaustion and death was nothing but an intense congestion or rather a paralysis of the afferent or proximal portion of the small intestine due to the intense congestion which was started and to the prolonged retention or stenosis of the contents of the gut. In addition to that there were reasons to assume that there was also sepsis present, not due to the herniotomy, but rather to exosmosis of the intestinal contents, that is passing through the congested and abnormal intestinal walls of infectious material into the peritoneal cavity. It has been established by experiment on animals, that when the intestine becomes congested and inflamed, not only paralysis of its muscular coat and enormous distention of the intestine and inability to propel its contents result, but that the infectious bacilli contained within the intestine, within the fæces, will find their way out through the intestinal walls into the peritoneal cavity and produce an intense peritonitis; and I believe that in this unfortunate case we have seen a counterpart of the experiment which has been performed repeatedly on the animal. I believe this man died in consequence, first, of paralysis of the

afferent or proximal portion of the small intestine, of exosmotic peritonitis, although we did not find sufficient reason to make the diagnosis of peritonitis as we used to make it ten or fifteen years ago, when we believed it could be diagnosticated only where the intestinal coils were agglutinated, etc. Nowadays we see patients die, after a laparotomy, with all the symptoms of peritonitis, and we find post-mortem a slight serous exudation, sometimes not even turbid, and a very moderate amount of hyperæmia of the peritoneum. Many of these cases have been in the early days of laparotomy classed under the name of shock, and wrongfully. Nowadays we know these cases are septic peritonitis.

DR. CABOT: In regard to the treatment by the general practitioner where he has sent for the surgeon, I would say that it has occurred to me to be called several times to such cases, in which I should have been very thankful if the general practitioner had prepared the field of operation for the surgeon. I think it would have been a very great assistance; and if general practitioners who do not intend to operate and have sent for surgeons would always apply an antiseptic packing over the field of operation, anticipating the surgeon's arrival, I think it would help the result very much.

SUFFOLK DISTRICT MEDICAL SOCIETY.

JAMES J. MINOT, M.D., SECRETARY.

ANNUAL meeting, Saturday, April 29, 1893, DR. E. N. WHITTIER, President, in the chair.

DR. H. F. VICKERY read a paper on

CASES OF PNEUMOTHORAX.[1]

DR. A. L. MASON: I should like to ask the reader if, in cases of pneumothorax, he would not expect usually to find pus in the cavity as well.

DR. VICKERY: Yes sir; I should say that was true in a large number of cases, but it is not a rule, without exception. I did not mean to imply anything about that in the paper.

DR. MASON: I ask because the question often arises as to the propriety of a permanent opening and drainage; as to whether these phthisical patients may be benefited by removing the pressure of the air and fluid by permanent drainage. As a rule, it is not advisable. I have in mind a number of cases in which the patients have insisted on something radical being done and in which life was prolonged perhaps by drainage and subsequent occasional washings. If the pulmonary fistula cannot close, there is no chance for lung expansion and such cases are not suitable for resection of ribs. When the pneumothorax is circumscribed as a result of pulmonary abscess or of empyema with perforation of the bronchi, drainage is absolutely necessary. Two or three such cases I have observed at the hospital with permanent cure, those cases being probably non-tubercular. I think that one of the cases that Dr. Vickery mentioned was of that kind.

DR. ELLIOT read a paper on

HYSTERECTOMY FOR FIBROIDS, WITH CASES.[2]

DR. HOMANS: I will try to avoid the narration of cases and to talk about the general subject. In the first place, in regard to the frequency of fibroids. In the last fifteen years I have seen six hundred cases of fibroids. I have operated on about sixty-five of these. That seems a small percentage, and very likely I ought to have operated on as many more, but some of these patients come once and I am in doubt whether to operate and I never see them again. In the last six weeks I have operated on nine cases. Now if one man has seen six hundred cases in fifteen years, it is rather a frequent disease. Sometimes these tumors, if not very large, disappear after pregnancy. I have seen such a case in the wife of a friend of mine. The woman became pregnant, aborted at about the sixth month and the tumor entirely disappeared.

The question of diagnosis is important. I saw a lady who was sent to me by a distinguished accoucheur with the diagnosis of fibroid to be removed. I examined her carefully and said I thought she was pregnant, which proved to be the case, and she was delivered at full term. The diagnosis, of course, is very important in these cases.

In regard to the size of these tumors. Sometimes the small ones cause as much trouble as the big ones. I have removed a small tumor not bigger than a horse-chestnut, because the lady could not sit down. She felt, as she said, as if she was sitting on a spool all the time. I opened the abdomen, removed the tumor from the posterior face of the uterus and she did perfectly well, and was entirely relieved.

Another cause for removal is hæmorrhage, another is pain and another the position of the growth. The reason I removed the tumor which I now pass around was on account of pain. The woman was about thirty years of age, and her life had been one of suffering for about six years. In operating I had to enucleate the tumor and treat the stump intraperitoneally. The operation took two hours and everything was removed except the button of the uterus just inside the vaginal septum. I could not drag up the tumor so as to put the wire under it. Both ovaries had a brownish-looking fluid in them which I thought might be dermoid, but they have not been examined as yet.

In regard to the treatment of these tumors. Having operated a good deal up to 1888, I got a letter from Dr. Keith, of Edinburgh, saying I must lay down my knife for fibroids, and that Apostoli's method would cure them. I got Apostoli's book and for eighteen months I worked at this tiresome and tedious process. It almost always stops the hæmorrhage, particularly if it is used at or near the menopause, the two causes combined, the electricity and the menopause, are very apt to cause a cessation of bleeding and sometimes a diminution in the tumor. I have never seen but one tumor disappear and it was in a woman who had only two treatments. How much the treatment had to do with it I don't know, but two years later the tumor had entirely disappeared. The Apostoli treatment will relieve pain in a good many cases. In a certain number of cases it will apparently arrest the growth, but it is unreliable.

Dr. Elliot spoke of the tendency of these tumors to become malignant. Whether they become malignant or the uterus becomes malignant, I don't know, because I have had no autopsies. I have operated on a lady over seventy, for a large ovarian tumor and at the operation have found a fibroid entirely calcareous. I did not meddle with it. Three years afterwards she developed hæmorrhage and now has cancer of the uterus. I have seen that same thing occur in, I think, two other cases.

[1] See page 64 of the Journal.
[2] See page 57 of the Journal.

Sometimes, as you know, these tumors are enucleated by nature through the vagina. I remember a case where I removed the ovaries for the cure of the fibroid. The woman had excessive hæmorrhage and I removed both ovaries and tubes. The hæmorrhage continued. At the end of two years she came again and the tumor was protruding through the os uteri and I removed it. Nature had cured her and she had lost her ovaries unnecessarily. I saw another lady whose husband asked me to have Dr. Keith come over from Scotland to see her. He came and advised against an operation. Within two years the tumor was extruded and was removed through the vagina. If you could tell whether these tumors were going to grow, or remain quiescent, or to be extruded, of course you would know when to operate and when not. Each case has to be determined on its own merits, and there ought not to be any rule that all uterine fibroids should be removed or should not be removed. Treatment by removal of the ovaries I think has been very much abandoned. Another lady I operated on for a fibroid successfully by the extraperitoneal method, and she subsequently developed cancer in the neighborhood of the scar and stump.

Dr. Elliot has spoken of the Trendelenburg position which is extremely useful. I could not have done anything without it in the removal of the tumor I have just shown you. The Trendelenburg position is one of the greatest advances of modern surgery. Some of my cases I have watched from five to thirteen years, and I intend to look up all my cases and see what has been the result in those who have had no treatment and in those who have been treated. Some of them I have watched and seen the tumors disappear of themselves. In some the tumor has not grown much larger and in some I have erred in not operating and they have been operated on by others. Some I have seen remain about the same. If there are no symptoms of hæmorrhage or excessive pain, frequent micturition or emaciation, I generally ask these people to come to see me once in six months and I am ready in that way to interfere if necessary. In some I have advised immediate operation.

The mortality of the operation is now much smaller than it used to be. I have operated on sixty-five cases with fourteen deaths. Forty-nine were treated extraperitoneally, sixteen intraperitoneally. The extraperitoneal had ten deaths and the intraperitoneal four. Now before 1887 I had done twenty-seven operations with seventeen recoveries and ten deaths, so that that makes my whole statistics, which of late years have been very good, much less good than it would have been if I had been able to operate better some years ago and had had better cases. The largest tumor I remember to have removed weighed fifty-two pounds. The patient recovered and has been well ever since.

The treatment by the intraperitoneal method has been very much improved of late years and can now be done in the majority of cases if the surgeon chooses to. The extraperitoneal treatment by the wire is quicker and saves a good deal of shock and a long operation, but the convalescence is long and tedious. What operation leaves the patient in the best condition as to future comfort is not yet determined.

For about a year and a half I treated all the patients who came to me by the Apostoli method, but it is a method requiring a person of an extremely calm, patient and sanguine temperament to practise it.

It is a very trying thing for the patient to have a severe cough after one of these operations. A week ago I operated on a woman at the hospital and found a hard mass in the umbilicus. The umbilicus is a frequent seat of cancer, so in doing the operation I cut out the umbilicus with its contained growth, on which I have not yet had a report. Two nights ago the woman had a severe attack of coughing. This place gave way and the bowels and omentum protruded. They were put back and the wound sewed up. I am going to operate Monday on a woman on whom I operated a year ago and the woman has a hernia from the scar where the wire came off.

There is another reason for operating on these tumors, and that is, they sometimes become entirely separated from the uterus. I have seen them sometimes with a small pedicle, but they sometimes become *entirely* detached from the uterus and are nourished by their adhesions. Those tumors are dangerous and I have seen one of them produce fatal strangulated hernia, from the intestine passing through a gap between the adhesions where the vessels came from the intestine, so that a movable tumor of the abdomen which you cannot locate as connected with any viscera ought to be explored to see if it is a wandering fibroid.

With the extraperitoneal treatment I have lately adopted the following method of treating the stump. I have, at the end of ten days, given the patient a little chloroform and tightened up the wire, and if the wire does not break the stump is cut off and drops back. I think this is better than cutting it off with the scissors or knife which is sometimes followed by hæmorrhage.

I do not know that it is worth while to go into the symptoms and sensations that people feel who have lost their uterus and ovaries. They suffer from hot flashes, whatever that means. The sensation is as if a lot of hot blood rushed to the head. Some have it once a day and some every five minutes. It is very troublesome and trying. I suppose after a year or so it subsides. Most patients grow fat.

I would then say that if a patient suffers from excessive and severe pain, suffers from hæmorrhage, if the tumor is evidently growing, if the woman cannot stand the tumor on account of its looks, or if it embarrasses her, although she may have no pain or hæmorrhage, so that she cannot stoop down to lace her boots and cannot walk with ease, then I think the tumor should be removed. I think the woman has a right to have the tumor removed for the looks if she chooses to. Where there is any doubt in my mind I ask them to come again and I try to keep up correspondence with them, but I have almost entirely abandoned the Apostoli treatment and I think I operate now for the removal of these tumors oftener than I used to.

DR. MIXTER showed a fibroid he had recently removed and said: This tumor is very much smaller than when it was first removed, as it was one of the so-called juicy fibroids, very œdematous, the whole thing weighing about thirty pounds. It is very flabby and at the time of operation it was filled with fluid and perhaps as large as it is now. This patient had carried this tumor for eighteen years and about eleven years ago she consulted surgeons in Boston and New York who advised against removal. Since then it has grown slowly, she now is thirty-nine years old and she could hardly carry this tumor around. She could not turn over in bed without lifting the mass, she was very

much emaciated and had had two very severe hæmorrhages during the past year, which had almost proved fatal. The operation was an easy one comparatively. There were few adhesions. The stump was treated intraperitoneally. I had hoped that Dr. Elliot would say something about the treatment of the stump and it was on that subject that I wished to speak in connection with this tumor. I can only say that this stump was treated intraperitoneally in one way, that is, as much of the peritoneum as possible was sewn over the stump, the uterine arteries being tied, one of them outside of the ureter, the ureter being found first and then the uterine artery and veins tied and then a safety suture being passed through the stump it was dropped back and packed around with iodoform gauze, thus completely shutting it off from the general cavity of the peritoneum and any hæmorrhage taking place would come up from the lower end of the wound. Two stitches were left untied and so in case of hæmorrhage it is easy to pull up the stump. No hæmorrhage took place. The gauze was removed at the end of forty-eight hours and the remaining stitches tied. There has been no suppuration whatever and the patient is perfectly well, normal temperature and pulse, and I think will be sitting up within a few days. I have never seen any reason for keeping patients in bed after laparotomy any great length of time, unless there is some open wound. In this case I think ten days will be sufficient.

The tumor is interesting, as showing these large divisions and lobules, which could be easily felt through the abdominal wall. Here is one of the ovaries which is concealed by them. The other ovary was free. The whole of the uterus, with the exception of a very small button, was removed at the time. The length of the pedicle was interesting in this case, showing how a tumor, carried as long as this one, stretches out the pedicle sometimes and it looked not much larger than an ordinary ovarian pedicle. As you see this is not now a particularly large tumor.

The treatment of the pedicle is where one has to use, perhaps, more judgment than in any other part of the operation. There is no one method applicable to all cases and there are three or four which can be used with advantage under certain circumstances.

DR. CUSHING: I think that one of the greatest advances in the whole question of fibroids, has come up recently, in the improved intraperitoneal method of treatment of the stump. The previous treatment by Schrœder's method was by merely tying two flaps together by force of ligatures, which often were too tight and liable to cause sloughing, or too loose, and thus permitting loss of blood. The extraperitoneal treatment by the wire or rubber ligature was therefore usually preferred, except in Berlin; this is a rapid way of getting through the operation, but makes a long convalescence, and as it was formerly used, the pedicle being very large, was apt to cause a sloughing stump. Recently, however, there has been a great improvement in forming the pedicle, either with the wire or with the internal treatment. No matter whether the tumor is above or below the peritoneum, most of it can finally be reduced to a little pedicle. By tying the uterine arteries on the side, the bleeding can be entirely stopped. That idea I think was first introduced by Chrobate, who advised tying the uterine arteries on each side, dilating the cervix and pulling a wick of gauze through it from above downward and then closing the flaps of the pedicle together and matching the peritoneum over it. It makes a nice little stump like that of an ovarian tumor. The first three cases I did by Schrœder's method in 1887, died, then I treated extraperitoneally twenty-five cases with twenty per cent. of deaths. I lost two, the last of these cases, last summer, without any reason I could see except obstruction of the bowels. I concluded to use the intraperitoneal method just described. I have operated on twelve cases in this way. All recovered without trouble. The convalescence is shorter, the pain less, and the operation not very much longer. It is often important, I think, to use a temporary rubber ligature in forming the pedicle, as it is much easier to tie the uterine arteries after the pedicle is formed and the mass of the stump is removed, than it would be previously. I will not discuss the total removal of the cervix at this time; I have done it, but prefer the method described above.

I agree with what Dr. Homans has said in regard to the indications: the pain, the pressure, the hæmorrhage, the growth and even the desire of the patient to be rid of the tumor. If there is any one thing well settled in modern times it is that a fibroid tumor is not the innocent thing it was formerly supposed to be. A common impression in the minds of the profession as well as of the public, is that nine-tenths of these tumors will go away at the menopanse. Probably the ones I see are those which do not go away. I often see a woman with a tumor that begins to grow at the menopause. A fibroid tumor which has begun to grow at about the menopause is one of the most dangerous things a woman can have, and the sooner it is removed the better, in my judgment. With the modern methods of treating the stump, there is no more danger in removing a fibroid than in removing any ovarian tumor, and I think the whole trend of expert opinion is towards removing earlier, if the patient consents; not to wait until she is run down, until pressure of important organs occurs, but to remove the tumor early. I have three patients on whom I operated week before last, one for hæmorrhage, one with a tumor retroverted and bound down by adhesions and pressing on the rectum, and the third for pressure on the ureters and renal colic at times and symptoms which showed, if it went on much longer, it would be a very serious matter.

As for the Apostoli treatment I used that faithfully in several cases and I have had to operate on some of those same patients since. I have had the same experience as Dr. Homans and have given it up. To use this treatment properly and without danger, requires a very great amount of most delicate and careful antiseptic work. I have seen plenty of cases where patients have been made worse, abscesses have formed, infection of the tubes has been set up, which was reasonably attributable to the Apostoli treatment, or the attempt to use it. I think it is a form of treatment which does not belong to the active surgeon, but to the careful work of the office practitioner.

DR. HOMANS: In reference to what Dr. Mixter said in regard to keeping patients in bed after a laparotomy, I have a patient from whom I removed a fibroid about four weeks ago by means of the Mixter clamp. This woman has got up almost every night since the operation and wandered about and the night nurse has found her up and about with this thing dangling from the stump. It has not done her any harm.

Dr. Elliot: Dr. Homans mentioned a case to me either privately or to-night, where he took out the stitches on the eighth day and the patient coughed the intestines out. This shows it is not safe to let a patient up on the tenth day. I think there is danger of hernia in letting the patient up before three weeks after hysterectomy. I let them up in two weeks after a simple ovariotomy.

Dr. Mixter: It seems to me that under certain circumstances it is well to keep the patient in bed. If, however, the incision has been closed completely and apposition has been good with a tight swathe and suitable padding and the abdomen not distended by gas, there is very little more pressure with the patient in the erect position than in bed and moving around. I have never seen any harm from such a course. I do not believe in keeping patients in bed after any surgical operation longer than is absolutely necessary. In breast operations I think it is well to get them out of bed the second or third day. Their convalescence is much more rapid.

Dr. Elliot: The intra-abdominal pressure on the abdominal wound is immensely increased when the patient stands. There is the weight of the intestines and the pressure of breathing comes down and out. Some laparotomists have reported five per cent. or six per cent. of hernias. I am sure it is an everpresent danger and I think one cannot take too much care. So far as the menopause goes, my experience would agree with that of Dr. Cushing.

Dr. G. H. Monks showed

A METHOD FOR APPROXIMATING THE FRAGMENTS IN A CASE OF FRACTURE OF THE RADIUS AND KEEPING THEM IN POSITION,[3]

recently used at the City Hospital.

Recent Literature.

Public Health Problems. By J. F. J. Sykes, B.Sc., M.B. London and New York: Walter Scott and Chas. Scribner's Sons. 1892.

This compact but comprehensive book is one of the Contemporary Science Series edited by Havelock Ellis. The author is the medical officer of health of one of the populous London districts, and has brought together in this volume his views upon matters pertaining to public health in a philosophical as well as practical manner.

The author's line of argument is foreshadowed in the following extract from the introductory chapter:

"Public health in its later developments has realized that it could never hope to satisfy its aspirations by the prolongation of the existence of the more favored members of the community. Its greatest justification lies in increasing the health and power of the workers, and especially of the industrial classes, those less able to help themselves. It is distinctly socialistic in its tendencies, as distinguished from individualistic: it is, in the widest sense, humanitarian. . . . It is well-nigh impossible to form an adequate conception of the problems involved in defending the health of a population without having in mind the various elements that undermine and overpower it."

[3] See page 63 of the Journal.

The subject is treated under four general divisions, with special chapters under each. The general divisions are as follows: Internal and External Influences upon Health, Communicable Diseases, Defensive Measures against Communicable Diseases, the Urban Dwelling.

Mr. Edwin Chadwick, whose writings have everywhere won respect for their candor and practical utility, is to the author an "amiable enthusiast."

Chapters upon Air, Water, Sewer-Gas, Cemeteries, Public Funerals, Meat, Milk and Infectious Diseases are all devoted to the same line of argument; and while there is a grain of wheat among the chaff, the author often strides beyond the boundaries, not only of truth, but those of common-sense. For example, on page 113 he says: "We are forced to the conclusion that there are no better tests for drinking-water than our first parents possessed; and that the instincts, taste and experience of a committee of farmers, mechanics or intelligent housewives are more to be depended on in the selection of a public water-supply, than are the so-called scientific tests of the sanitarians."

In his belief as to the actual causes of epidemic diseases the author does not appear to have made much progress beyond the "vagaries" of Noah Webster, whose volumes on "Pestilences" (1799) he freely quotes. "Mr. Webster *thought*," says he, "that there was not much doubt that yellow fever was a pestilence among the Indians before the landing of the Pilgrims. He did not believe that it was contagious." If this is a sample of the author's scientific investigation, it is no better than that of the sanitarians whom he criticises.

He, however, apologizes for a vigorous style as follows: "If, sometimes, the author has betrayed a warmth of expression, it is because of natural indignation that he had not only been the dupe of noisy men who were posing as scientists, but that through their teachings he had been the instrument of duping others."

Vagaries of Sanitary Science. By F. L. Dibble, M.D. Pp. 462. Philadelphia: J. B. Lippincott Co. 1893.

The chief object and aim of this remarkable book appears to be to break down the doctrine of the causation of disease by filth. So far as the author refers to the popular notion that filth causes certain infectious diseases *per se* he is undoubtedly correct in his criticism. It is scarcely twenty years since Mr. Simon, the chief medical officer of the Privy Council of England, published his tract upon "Filth-Diseases and their Prevention"; but since that time the progress of scientific investigation has shown that it is not merely filth which causes disease, but specific filth, or filth in which the germs of disease have been implanted.

Dr. Dibble quotes very fully from the health authorities of all countries, past and present, in support of his views. He is especially severe in his comments upon American Health Reports, both State and local, and says he "was struck with astonishment at the almost utter barrenness, on the part of sanitarians, of anything like scientific investigation."

The files of volumes of these reports are to him a jumble of conflicting theories unsupported by fact and observation. "None of them," says the author, "(if we except the Massachusetts Board) prosecutes any researches into the etiology of epidemic disease that deserve to be called scientific."

THE BOSTON

Medical and Surgical Journal.

THURSDAY, JULY 20, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

CONSANGUINEOUS MARRIAGES.

THERE has from antiquity been a general belief, supported by some physiological considerations, that marriages between near relatives are likely to be followed by deterioration and degeneration in the offspring. It has been maintained that by such unions ancestral and family imperfections would not only be perpetuated, but raised to their highest potency.

That this holds good in the transmission of nervous diseases, no physician doubts; and the offspring of parents who are both markedly neurotic, will, unless favored by unusual fortifying circumstances, almost certainly be neuropathic.

A similar affirmation may be made regarding constitutional diseases, such as gout, tuberculosis and carcinoma.

Consanguinity and affinity have been at different times and in different parts of the world, looked upon as impediments to marriage between the parties related. The Roman law prohibited marriages between ascendants and descendants, between brothers and sisters, and at one time between cousins-German; and the old canon law and early *decretals* forbade marriages between persons as far removed as the seventh degree of consanguinity. Doubtless, on the other hand, in very early stages of society, marriages between near relatives were the rule.

The question has been asked whether, when both parents are absolutely sound and healthy, consanguineous unions are detrimental to the offspring, entailing constitutional defects.

De Sinety, in a recent work on sterility, discusses the question in the light of many interesting facts. We can, he says, only judge of the results of consanguineous marriages by the quality of the progeny. We have, to-day, at our disposal, to decide the question, a certain number of examples which seem to be exceedingly pertinent. There are certain fishing-stations on the coasts of France where the seafaring population live in the neighborhood of a rural population without contracting marriages with them. In the commune of Batz, in the Loire Inférieure, composed of 3,000 inhabitants, there has been frequent intermarrying for a great many years among near relatives of a dozen or so of families. With regard to most of them, the relationship is of the third to the fifth degree; and yet all, men and women alike, are robust, of good stature, firm health, and the children are numerous and healthy.

Many more observations of a similar nature might be cited, from which it would appear that consanguinity of itself is not especially detrimental to the progeny. As Sanson says, consanguinity raises heredity to its highest power by causing to act in the same direction *atavism*, or the disposition to revert to ancestral qualities and individual peculiarities.

If, then, the parents are vigorous, well developed physically and mentally, these qualities accumulate in their descendants and the influence of consanguinity in such an event is favorable to the species.

If the progenitors are, on the contrary, sickly, or present any pathological defect whatever, the hereditary vices of the two families are transmitted to posterity and the action of consanguinity is then detrimental.

WATER-FILTRATION AND CHOLERA.

ON another page we present a letter from Hamburg from a special correspondent well qualified to impart the information which the letter conveys. The comparative experience of Hamburg and Altona in regard to cholera last summer is interesting and important. Attention is called to the comparative immunity of Altona, for which the system of sand and gravel filtration of the Elbe water there and then practised is given credit. A similar system has lately been put in operation for Hamburg proper; and the city — of which Altona is practically a *vorstadt* or suburb — is now furnished with a water-supply similarly treated to that at Altona, and originally somewhat better. Reference is made by our correspondent to Koch's statements in regard to water-filtration and cholera. The result of Koch's investigation into this subject appeared in a paper or lecture,[1] which is exciting attention and comment in various quarters.[2]

After reviewing the situation last summer, Koch takes the ground that the difference between Hamburg and Altona in respect to cholera can be explained in no other way than by the difference in the water-supply, and that Altona was protected by the filtration of the Elbe water. He does not, however, conclude from this that a sand and gravel filter is a safe and sufficient protection against cholera or other bacilli in a water-supply. The real protection, he thinks, lay in the

[1] Zeitschr. f. Hyg. u. Infectionskrankheiten, Bd. 14, pp. 393-426; Deutsch. Med. Wochschr., No. 24, p. 577, 1893.

[2] Cholera Causation and Prevention at Home and at Hamburg, R. Thorne Thorne, M.B., F.R.S., Lancet, July 1, 1893, p. 50; July 8, 1893, p. 94.

slimy film or coating on top of the filter — a coating which consisted of the deposit of river mud, organic matter, *débris* and micro-organisms. When this coating was ultimately broken, cases of cholera were developed in Altona.

We shall undoubtedly hear more of this subject. An able engineer, small filters, and a moderate rate of filtration are recognized as three requisites for insuring good results. The new Hamburg filters are regarded as large filters.

The recent long-continued period of drought in England has called renewed attention to the best methods of treating water-supplies, and especially that of London, in regard to which a royal commission is now taking evidence, preliminary to a report.

In the mean time neither the example of Altona nor anything in the statements of Koch justify reliance upon the sand and gravel or the ordinary domestic filters *per se*, as protections against cholera or typhoid fever.

MEDICAL NOTES.

Walker Prizes. — One of the subjects for the Walker Prizes next year is "Experiments affording Evidence for or against the Theory of Evolution."

Ohio State Medical Society. — At the last meeting of the Ohio State Medical Society, N. P. Dandridge, M.D., of Cincinnati, was elected President, and Thomas Hubbard, M.D., of Toledo, Secretary.

The Birth-rate of Paris. — According to the report of vital statistics in Paris, the last week of June, there were 1,292 births, 902 legitimate and 390 illegitimate. Of these 676 were males and 616 females.

The Simmons-Tilden Law Suit. — The suit of Dr. Charles E. Simmons against the executors of the Tilden estate, for professional service, has been settled by compromise. Dr. Simmons receives $40,000 for eight years' service, his original claim having been $143,350.

Cholera. — Reports from abroad show that the cholera is making gradual progress along the whole of the Mediterranean coast of France and Spain, and to some extent northwards. At Marseilles the condition remains about the same. At Lyons there has been a slight increase in the number of cases, as at Toulon. A few cases have occurred at Nantes. In Mecca and Jeddah the death-rate has continued very high, reaching nearly 500 daily in Jeddah. In Russian towns there have been some 400 cases with about 140 deaths. The disease made its appearance in Buda Pesth on the 12th. In Alexandria there have been over 40 deaths so far.

Yellow Fever. — Two vessels arrived at Delaware Breakwater last week with cases of yellow fever on board. One was from Havana; the other from Santos, Brazil, where a severe epidemic of yellow fever exists. The deaths are reported to number several hundred; but no accurate figures have been received, and it is feared the United States Consul has died.

Quarantine Changes at Philadelphia. — The new quarantine law of Pennsylvania, which went into effect July 1st, marks an important step in the direction of a uniform national quarantine. By its provisions the control of quarantine, which is relinquished by the Philadelphia Board of Health, is given to a board of seven persons, two of whom are appointed by non-official bodies, one each by the College of Physicians of Philadelphia and the Maritime Exchange. The present lazaretto is to be removed within two years, and the new station will not be located on any mainland of the State. All quarantine fees are to be abolished. The most important feature of the bill, however, as the *Medical News* rightly says, is the provision made for the substitution of National for State quarantine. The act empowers the governor to suspend the whole State system whenever he is satisfied that an efficient quarantine is maintained by the Federal authorities. That such a quarantine will some time be maintained, can hardly be doubted, and it will be a notable reform when a single service uniform throughout all ports is established.

The Effect of High Altitudes on the Blood. — Egger has demonstrated a rapid increase in the number of red corpuscles in the blood to take place in high altitudes. From experiments on twenty-seven persons living at Arosa, an altitude of 1,800 metres, he found that though other conditions of life were as nearly the same as before, the number of red cells increased markedly from the average in these persons when at lower levels, nearly a million in a fortnight. The hæmoglobin was also increased. The gain was lasting so long as a high altitude was kept, but on returning to the plains the number gradually fell off to its original point. Koeppe also obtained similar results in his experiments.

NEW YORK.

Yellow Fever. — On July 13th, Health-officer Jenkins reported that the supercargo of the British freight steamer *Ardangarm*, which arrived from Cienfuegos, Cuba, on July 9th, had died just as the vessel was entering port, suspecting from the symptoms described to him that the case had been one of yellow fever, he ordered the body to be removed to Swinburne Island, where an autopsy was made and showed conclusively that death was due to this cause. Dr. Jenkins also reported that since July 3d, he had been holding the Belgian steamer, which came from Santos, Brazil, in quarantine, because he had no doubt that two deaths which occurred on board during the voyage were really due to yellow fever, although they had been diagnosed on the ship as intermittent fever. Both vessels, after having been thoroughly disinfected, were released from quarantine on July 14th.

ST. JOHN'S GUILD HOSPITAL. — On July 11th, the St. John's Guild Floating Hospital made its first trip of the season to the Guild's Seaside Hospital at New Dorp, Staten Island; and it is now making six excursions a week, three from North River piers and three from East River piers.

NEW YORK STATE BOARD OF HEALTH DISTRICTS. With a view to increasing the efficiency of its service, the State Board of Health has divided the State into six districts with a special inspector for each, whose duty it shall be to report the sanitary condition of the territory allotted to him and the efficiency of local boards of health. One important purpose in appointing these inspectors is to secure protection as far as possible against the invasion of contagious disease and to enable the State and local boards to take prompt and efficient action in case such invasion occurs.

MORTALITY. — During the week ending July 8th, 917 deaths were reported, an increase of 215 over the week preceding. Although this represents an annual death-rate of 25.28 per thousand of the estimated population (as against 19.37 for the previous week), this mortality is 123, or nearly 15 per cent. below the average for the corresponding week during the past five years. Deaths from diarrhœal diseases numbered 182, an increase of 97 over the week ending July 1st, and the deaths of children under five years of age amounted to 489, an increase of 149; 333 of the deaths were in children under one year, an increase of 33 per cent.; while the deaths in tenement-houses numbered 613, an increase of 58.

During the week ending July 15th, the deaths reported in the city amounted to 1,096, an increase of 179 over the preceding week. This mortality, however, is 143 below the average of the corresponding week for the past five years, and 240 below the number of deaths during the corresponding week last year. In the week ending July 16, 1892, when the weather was very hot, the mortality reached the unprecedented figure of 1,336, representing an annual death-rate of 38.09.

Miscellany.

THE CAUSATION OF ANÆMIA BY URIC ACID.

HAIG offers another chapter in his study of uric acid in a short report on experiments made to show the direct relation between uric acid excess and anæmia. The excess of uric acid, he claims, is not due to the anæmia so often found coincidently, but is its direct cause. Inasmuch as uric acid administered by the mouth finds its way, as such, directly to the blood and eventually to the urine without being changed to urea, he was enabled to alter at pleasure the uric acid percentage of the blood.

Following the close clinical resemblance between a uric acid storm as seen in the uric acid headache (migraine) and the symptoms which precede and accompany a paroxysm of hæmoglobinuria, it occurred to him by producing a uric acid storm, to try to cause at least some blood changes.

He found that by taking pure uric acid he could diminish at will the value of the portion representing the relation of hæmoglobin to red cells. This value rose again on leaving off the uric acid. Experiment also showed that the blood responded in the same way to the normal daily excretion of urates.

In chlorotic patients, after increasing the blood fraction by giving iron, he gave beef-tea, in which he had estimated the uric acid. This produced a fall of the blood fraction, which again was followed by a rise when it was left off. These observations were in several cases with results that are practically identical and apparently proportional to the amount of uric acid taken.

HEART-DISEASE OR KIDNEY-DISEASE.

TYSON, in a paper read before the Pennsylvania State Medical Society, discusses by means of four illustrative cases the difficulty of diagnosis between these coincident diseases.

The first case, that of a shop-girl, aged fourteen, was supposed to be a case of chronic parenchymatous nephritis, while further study showed it to be one of primary valvular disease of the heart, with secondary passive congestion of the kidney.

The second case was one of chronic interstitial nephritis, with hypertrophy of the left ventricle, in which all of the symptoms pointed to primary heart-disease, but the true nature of which was easily revealed upon closer study.

The third case was more complex. An ancestry and a personal history of gout; an albuminuria, at first small; absence at first of casts, and then sparse casts, all pointed to gouty kidney, a supposition by no means weakened by existing sense of oppression, and dyspnœa. On the other hand, an evident mitral murmur; moderate degree of hypertrophy of the left ventricle, dilated right ventricle; an irregular heart, gastric catarrh, and dropsy, pointed to a condition of mitral regurgitation. Yet the problem (heart or kidney?) was a difficult one. It seemed that in this case doubtless both organs were affected independently, each from the same cause — gout. Unfortunately, there was no autopsy.

The fourth case was a complete surprise in the light of the autopsy. A distinct mitral systolic murmur and extreme anasarca; scanty urine and pleural effusions, all combined to favor the idea that there was mitral regurgitation, while the fact that the patient had had two seizures, best explained on the supposition of cerebral embolism, seemed to add all that was required to make the diagnosis absolute. One symptom only might have suggested a renal origin, and that was a marked degree of hypertrophy of the left ventricle, without aortic disease, yet the autopsy showed extreme mitral stenosis and typical large white kidneys beginning to contract.

Though in many cases it is almost impossible to decide between a mitral disease and a chronic nephritis, there are certain points which are of assistance in the diagnosis: the careful study of the character of the urine and the degree of cardiac enlargement. But a fact on which the writer lays much stress in deciding in favor of a primary kidney-disease, is the failure

of heart tonics, like digitalis, to produce diuresis, even though the pulse rate is lowered. The importance of a correct diagnosis for prognosis is self-evident.

A FOREIGN BODY MISTAKEN FOR CANCER.

At the last meeting of the Lyons Medical Society, Frarier showed the stomach of a patient who had given the following curious history:

For a long time he had been losing weight and strength, and had repeated attacks of vomiting, with gastric distress. He was emaciated and cachectic. Examination showed some anasarca and a weak heart There was no cardiac murmur nor albuminuria; the stomach was much dilated; and a large diffuse tumor was felt in the epigastrium. The vomitus was coffee-colored. A diagnosis of carcinoma was made. Washing out the stomach gave slight relief; and the patient gradually failed, and died of exhaustion.

At the autopsy no tumor of the stomach was found, but the mass felt before death proved to be a large collection of prune and cherry stones and raisin pips, so matted together by mucus as to be separated only with some difficulty.

LAVAGE OF THE STOMACH.

The comparative readiness with which the stomach may be washed out by the general practitioner, and the numerous cases in which relief is thus afforded, leads Pick [1] to a discussion of what constitute suitable cases. His classification includes:

(1) All cases where the food remains an abnormally long time in the stomach, whether such delay is due to dilatation consequent on stricture of the pylorus or to simple stretching.

(2) Cases of carcinoma of the pylorus where the greatest relief is often given by regular siphonage and cleansing.

(3) To remove excessive mucous secretion due to gastric catarrh and as a means of testing the deficient elements of the digestive fluid.

Cholelithæmia and catarrhal icterus, to remove auto-organic poisons.

All cases where the retching might be fatal to the patient as in advanced cardiac, pulmonary or arterial disease are contraindications.

TREPHINING FOR PISTOL-WOUNDS.[2]

Von Bergmann reports to the Berlin Medical Society his conclusions on the treatment of penetrating wounds of the skull based on the observation of twenty-five cases. There are three easily-distinguished classes, each of which has a definite anatomical lesion, and calls for a fairly definite treatment.

The first division includes such patients as are unconscious and motionless, so that the question of paralysis cannot easily be made. Associated with this unconsciousness there are symptoms of cerebral pressure, with increasing coma; a slow followed by a rapid pulse; and a fatal termination, or gradual return of consciousness and recovery. Such cases as these point, as a rule, to an injury of the lateral ventricle, with hæmorrhage into it and the meninges.

In the second class of cases there is little or no loss of consciousness; but localized paralysis or spasms are found developing, which point, of course, to definite cortical regions.

The third class of cases is marked by absence of symptoms, the wound being seated in the frontal lobes.

As regards treatment by exploring or trephining, Bergmann takes a decided stand against undue interference, especially with the probe, which, he says, should be used only as indicated *during operation*, not to search for the bullet. The treatment of all cases should be the thorough cleansing of the parts *about* the wound, and aseptic dressing. The less interference with the interior of the wound the better. With regard to trephining, he is equally conservative. He thinks that the absorption of the clot is best done by nature, and that many cases have recovered in spite of trephining. Two indications call for trephining: the occurrence of motor irritation, and wide-spread splintering of the bone. Other cases, particularly those of the third class, call for no treatment beyond rest and cleanliness.

[1] Centralblatt. für Therap., May, 1893.
[2] Deutsche Med. Zeitung, 1893, No. 53.

THE TREATMENT OF PROSTATITIS BY ICHTHYOL.

Within a short time several reports have been published upon the use of ichthyol in the treatment of prostatitis. Scharff, in 1892, reported about forty cases of acute inflammation of the prostate, chiefly of gonorrhœal origin, successfully treated by the injection into the rectum of a ten-per-cent. solution in water of ichthyol, three or four times a day. An early cessation of the pain and diminution of the swelling of the gland resulted, and in no case was there any abscess formation. Ehrmann used successfully, in treating gonorrhœal prostatitis, deep irrigation with a ten-per-cent. solution of ichthyol, as well as suppositories of the same drug. Ullmann also reported excellent results from the use of suppositories. All these cases were gonorrhœal in origin.

Freudenberg,[1] of Berlin, has just reported the results of his treatment of prostatic inflammation during the last two years. His cases numbered about forty; and the treatment reported was used only in chronic prostatitis, or the later stages of an acute inflammation, since he was more satisfied to treat the active stage of a gonorrhœal or simple prostatitis by the usual routine of rest in bed and perineal applications.

In the chronic stage the treatment was always rectal suppositories, made in the following proportions:

℞	Ammonii sulfo-ichthyol . .	0.3 to 0.6 grammes.
	Ol. cacao	2.0 to 2.5 grammes.

One of these was given at night and another after evacuating the bowels in the morning. In all cases a rapid improvement took place in the symptoms. The pain on defecation, the oppression in the perinæum, and the tenesmus frequently ceased entirely, while the actual swelling of the gland was much diminished. There were but two exceptions, both cases where the treatment was interfered with by sexual excess or in other ways. In the doses given no irritation of the bowel followed, and considerably larger doses even were well borne.

[1] Centralblatt. für klinische Medicin, 1893, No. 26.

It is important, however, that the ichthyol be thoroughly mixed with the butter, not enclosed in hollow suppositories, as the crude drug is irritating enough to cause rapid evacuation of the bowel and so fail of its desired action.

THE DIRECTION OF CANCER TREATMENT.

DR. HERBERT SNOW, in a recent paper on "Improvement in Cancer Treatment," points out a few rational principles which should underlie all treatment of carcinoma, and which, if adhered to, would lead to better results than at present obtained.

The fatal effects of cancer, especially in surgical cases, are due, he points out, more often and to a greater degree to metastatic growths than to the original lesion. The "infection-paths" should be recognized as definite and regular, differing in carcinoma and sarcoma. A routine operative removal is essentially wrong. A case of carcinoma is improperly treated if the primary lesion alone be excised, while glands which are involved are neglected; indeed, the removal of glands should extend to those in the line of infection beyond the point of existing enlargement, since only thus can further progress be checked. Of the two lesions, the secondary deposit should receive the first attention if one only be attacked.

In true sarcoma, on the other hand, the presence of enlarged glands in the vicinity is *prima facie* evidence of a general systemic infection having occurred, with the probable presence of secondary growths in the parenchymatous organs. The bearing of this relation on operation is obvious.

The more we realize the force of those relations, the more urgent becomes the necessity of an early diagnosis, and immediate operation. To wait for signs of glandular infection before removing a suspicious growth is to delay too long. Microscopic diagnosis should be made at once, and heeded when made. As to medical treatment the writer says a patient with cancer not amenable to surgical operation should at once be put upon small, continued doses of morphia or opium and made permanently subject to the morphia habit, purposely induced. The drug should be given with the avowed object of arresting and keeping in check the progress of the lesion.

The benefits of the principle are most evident in connection with carcinoma in the female breast, though by no means limited to this. The practice of withholding opium until compelled by pain to resort to its use, merits unmeasured condemnation.

THERAPEUTIC NOTES.

PERSISTENT VOMITING. — Guyot[1] reports a case of persistent vomiting in a man, which resisted all the usual treatment. On the history that he had once lived in a malarial country, he was given an injection of quinine, although he showed no signs of malarial affection other than a slightly enlarged spleen. The vomiting ceased almost immediately.

DYSPNŒA OF PULMONARY PHTHISIS. — The symptom of dyspnœa in cases of pulmonary phthisis is one which especially taxes the therapeutic resources of the practitioner. Though based on physical conditions, the distress to the patient is very often out of proportion to the lesions existing in the lung. It is this sense of oppression and inability to breathe which is most difficult to relieve in many cases. Dr. Beverley Robinson, of New York, reports excellent results in such conditions from the use of an old-fashioned drug, silphium lanciniatum, commonly known as "rosinweed." He gives it in half-drachm doses of the tincture, and finds often a quick response when other drugs have failed to relieve the patient. The tincture should be made from the root, and especial care should be taken to write for the silphium lanciniatum as the allied species, thapsia garganica or silphium gummiferum, have quite different properties.[1]

A VEHICLE FOR IODIDE OF POTASH. — Delavan recommends essence of peppermint and milk as an agreeable menstruum for the administration of large doses of iodide of potash.

OTALGIA. — The recipe given below has been found useful:

℞ Menthol, Camphoræ ā . . . . . ss gr. xx.
Liq. Albolene . . . . . ʒi.
Drop in ear p. r. n.

URTICARIA. — Bourdeaux[2] has found the following prescription to give great relief in urticaria:

℞ Liquor. calcis, Aquæ Laurocerasi, Glycerini ā . . . . . equal parts. M.
Sig. Apply externally and cover with cotton.

ACNE. — Unna prescribes the following ointment for acne:

℞ Unguent. zinci, Lanolin, Calcii chloride ā . . . . . ss 10 parts.
Sulphur præcip. . . . . 3 parts.

PHOTOTHERAPEUTICS. — The ordinary sun-glass has become lately a vaunted therapeutic agent. Sciascia, an Italian oculist, reports favorable results from photocauterization in cases of trachoma, claiming more accurate and safer effects than are obtainable from other caustics, chemical or mechanical.

Correspondence.

[Special Correspondence.]

LETTER FROM HAMBURG.

WHAT IS BEING DONE TO PROTECT THE CITY AND ITS COMMERCE AGAINST CHOLERA.

MR. EDITOR: — This city is making strenuous efforts to keep out cholera, and also to prevent its springing up in the city. In respect to the former measures Russian steerage passengers are forbidden entrance into the city, and the different transportation companies are forbidden to forward them, no matter whither. In respect to the second statement, the latest result is that attained by the supply of pure filtered water. The city takes its water from the Elbe River, some distance above the harbor where also the current is quite rapid. For a considerable distance above and below this point, no vessel is allowed to anchor; the water is led into basins, where it is filtered through sand and thence is brought into the water mains of the city.

[1] La Bulletin Médical, No. 52, 1893.

[1] New York Medical Record, July 15, 1893.
[2] Rev. de Clin. et de Thér.

(The old unfiltered water-supply has been absolutely and entirely cut off.) Professor Koch has lately published a couple of articles on the action of this filtration and is inclined to believe the good results are obtained by the water passing through the layer of albuminoid matter, or slime, that is deposited on the surface of the sand, and strenuously warns against breaking up or disturbing the continuity of this layer. Whereas the water in previous years was unfiltered, dirty and suspicious, the new filter system supplies a *pure clear* article, that is germ free. Up to the introduction of this filtered water, there were scattered about the city, wooden booths where water was thoroughly boiled, and then delivered free to all who applied for it. Several artesian wells also supplied certain sections of the city. The supply of pure, filtered water being sufficient in quantity for all the city's needs, the booths are being removed. The supply of water delivered to the filter station is abundant. When it is remembered that ocean steamers come up to the harbor and here find easy berths, it is good proof that there is plenty of raw material to turn into the filter basins, and these are adequate for all needs.

Notices and placards have been posted, advising care in the use of water, so as not to overstrain the plant; but when all the basins are finished, which will shortly be the case, there will be no limit to the supply. All public parks and the streets are now being sprinkled with the filtered water.

To Americans the principal interest centres, naturally, around the treatment of the emigrants destined for the United States. There are two lines of steamers, from this city, carrying passengers to America, "The Hamburg American Packet Company" and the "Union Line." The passenger business for the latter is done by the Packet Company, so that all passengers come under the same control.

The ships carrying these passengers are cleaned and disinfected under the supervision of a medical man, who is an assistant or deputy of Dr. Jenkins, Quarantine Officer of the Port of New York. The crew's quarters and closets, the steerage compartments, closets and hospitals, receive special attention. All articles are removed; bunk-boards, wash-stands and shelving being ripped out, so that clear access is had to every part; nooks, corners and cupboards are thoroughly scraped out, as well as spaces under the bunks and drawers; with scrubbing-brush and a solution of strong soap lye and water, every part is made clean; then all is washed out with a solution of bichloride of mercury (1–500.) In the meantime, all the articles that had been removed have been as thoroughly handled on the deck, and then all are loosely replaced where they belong. Constant inspection is made during the cleaning process, until it is all completed satisfactorily. Each steerage bunk is provided, at each trip, with a new clean mattress and pillow; for each one hundred passengers, four beds must be furnished in hospitals specially set apart for this purpose.

Just before the hour of departure of a vessel, the ship is again inspected, with regard to cleanliness, air-space, and ventilation, by the sanitary inspector of the Marine Hospital Service stationed here and by the New York Quarantine Agent. At this time the officers and crew are inspected by both medical men, and the number present and inspected, compared with the muster-roll: any sick person or one showing suspicious symptoms is rejected and replaced.

The water furnished all ships is from an artesian well, which has been examined and found pure and germ free. This is the only water in use on these ships.

Every person entering the city must be registered by the police and certain hotels or lodging-houses are licensed by them to receive and care for these people. Russians have always been taken to the barracks, across the river from the city, while others seek houses where they may find people from their own section of the country. The barracks are under police control and have a physician, specially appointed to attend to the health of the inmates. Dr. Jenkins's agent makes daily inspections of the inmates and the buildings, and the sanitary inspector makes frequent visits as well. As soon as the new-comers are registered, they are stripped and receive a bath: in the meantime their clothing is disinfected by steam at a temperature of over 101° Celsius. The person remains in the bath until his clothing has remained in the steaming chest a sufficient length of time. The baggage — contents of trunk, basket or box, is taken to a steam disinfecting-plant, the day before sailing of the steamer and disinfected under the superintendence of both medical men. Inmates of the barracks must remain there under observation at least six days, before they are allowed to travel: they then receive a certificate to this effect, together with their ship's ticket and emigrant inspection-cards.

People of other nationalities are lodged, as said, in licensed houses: here they are under daily medical observation by German physicians, and also inspected frequently by the medical men before mentioned, who also inspect the hotels in every particular. People coming from infected or suspected districts are held under quarantine observation of the sanitary inspector, according to the laws enacted by Congress this last spring. These latter receive a certificate from the German visiting physicians, at the time they receive the ship's ticket as well as the emigrant inspection-cards. Every emigrant receives these cards; and those going to New York receive an additional card, as required by the New York quarantine authorities. The cards state the passenger's name, age and nationality; the name of the ship and the port of departure; and are to be daily punched by the ship's surgeons as they make their usual rounds.

At the time of embarkation, the people are gathered in one room, and then file into an examination-room, where they pass inspection. Here stand Dr. Homann, the medical inspector of emigrants, appointed by the Hamburg Government, and who stamps the official seal of the city on all tickets that pass inspection; Dr. Müller, a Hamburg physician, who assists Dr. Homann in his inspection; Dr. J. H. White, sanitary inspector of the Marine Hospital Service, who stamps the emigrant inspection-cards, required by the United States Government, with his official seal, of all persons passed; Dr. Mitchell, his assistant; and Dr. Nash, who represents the New York quarantine, and who stamps inspection-cards, of those bound for New York. The people are tallied as they pass on board the ship. In addition to the medical inspection, there is a police inspection, but that does not concern us here. Each passenger receives a ticket which corresponds to that on the ship's manifest, and which he must also show in America.

All luggage must be inspected and disinfected according to the quarantine regulations, under supervision of inspectors.

When the passengers are all inspected, the bill of health is made out, and the consul certifies to the ship's manifest, each sheet receiving the special declaration of the first officer and ship's surgeon, who have witnessed the embarkation.

Ships sailing for all ports of the United States and Canada are inspected by all the gentlemen above mentioned, and they and their luggage are treated as above stated.

I think it can be safely said that the treatment and inspection of emigrants bound for America from Hamburg is as thorough and careful a one as can be had; and no doubt it will continue to have, as has already been proved, a salutary influence on the health of such as travel to America.

Very truly yours, GEORGE W. NASH, M.D.

CELIBACY IN THE ENGLISH CHURCH. — The Diocesan conference of St. Albans, England, recently discussed the question of celibacy of the clergy. It was remarked that the livings in many cases were not given to support married men, that clergymen too often contracted improvident marriages. They were advised to follow the example of "the average doctor," who "practices continence as regards marriage until his income is sufficient to warrant such a step."

METEOROLOGICAL RECORD,

For the week ending July 8, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A. M.	Relative humidity. 8.00 P. M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A. M.	Direction of wind. 8.00 P. M.	Velocity of wind. 8.00 A. M.	Velocity of wind. 8.00 P. M.	Weather.* 8.00 A. M.	Weather.* 8.00 P. M.	Rainfall in inches.
S... 2	29.94	70	80	59	78	86	82	S.W.	S.	5	10	C.	C.	
M.. 3	29 88	70	79	62	78	90	84	S.W.	S.	10	6	F.	O.	
T.. 4	29.88	73	80	66	86	80	83	N.W.	N.W.	13	10	C.	C.	
W.. 5	29.91	70	79	62	64	66	65	W.	S.	7	18	F.	O.	
T.. 6	29.90	70	78	62	68	55	62	N.W.	N.W.	12	8	C.	C.	0.14
F.. 7	30.06	71	80	62	58	53	56	N.W.	S.	7	10	C.	F.	
S.. 8	29.90	74	83	64	58	53	56	S.W.	S.W.	14	16	C.	O.	
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 8, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from: Infectious diseases.	Consumption.	Diarrhœal Diseases.	Diphtheria and croup.	Scarlet fever.
New York . .	1,891,306	917	489	33.99	8.69	20.02	6.16	1.65
Chicago . . .	1,438,000	437	200	18.63	11.04	10.35	2.99	1.15
Philadelphia .	1,115,562	464	218	25.52	10.56	19.14	3.74	.22
Brooklyn . .	978,394	476	251	28.77	9.24	21.42	2.94	.84
St. Louis . . .	560,000	—	—	—	—	—	—	—
Boston . . .	487,397	171	52	9.28	17.80	.58	4.06	2.90
Baltimore . .	500,000	—	—	—	—	—	—	—
Washington . .	308,431	145	73	31.05	9.66	26.22	1.38	—
Cincinnati . .	305,000	135	60	17.76	9.62	14.06	2.22	—
Cleveland . .	260,000	71	32	16.92	8.46	5.64	1.41	1.41
Pittsburg . .	263,709	168	104	49.80	6.60	33.00	3.00	2.40
Milwaukee . .	250,000	72	35	18.07	5.56	1.39	8.34	5.56
Nashville . .	87,754	45	13	11.11	13.33	2.22	—	—
Charleston . .	65,165	52	14	17.28	15.36	15.36	—	—
Portland . . .	40,000	8	1	—	12.50	—	—	—
Worcester . .	96,217	23	5	13.05	8.70	—	—	—
Fall River . .	87,411	41	19	41.48	4.88	39.04	2.44	—
Lowell . . .	87,191	—	—	—	—	—	—	—
Cambridge . .	77,100	26	10	19.25	19.25	11.55	3.85	—
Lynn	62,656	19	9	10.52	10.52	—	5.26	—
Springfield . .	48,684	24	7	12.48	12.48	12.48	—	—
Lawrence . .	48,355	—	—	—	—	—	—	—
New Bedford .	45,886	21	11	19.04	—	9.52	—	4.76
Holyoke . . .	41,278	—	—	—	—	—	—	—
Salem	32,233	10	4	10.00	—	10.00	—	—
Brockton . .	32,140	11	2	18.18	27.27	9.09	—	9.09
Haverhill . .	31,396	11	5	18.18	18.18	9.09	—	—
Chelsea . . .	30,264	11	—	9.09	18.18	—	—	9.09
Malden . . .	29,394	5	0	20.00	20.00	20.00	—	—
Newton . . .	27,556	—	—	—	—	—	—	—
Fitchburg . .	27,146	11	4	—	—	—	—	—
Taunton . . .	26,972	12	2	8.33	—	8.33	—	—
Gloucester . .	26,688	4	0	25.00	—	—	—	—
Waltham . . .	22,058	6	4	16.66	16.66	—	16.66	—
Quincy . . .	19,642	5	1	20.00	20.00	20.00	—	—
Pittsfield . .	18,802	1	1	—	—	—	—	—
Everett . . .	16,555	3	3	33.33	—	33.33	—	—
Northampton .	16,331	1	0	—	—	—	—	—
Newburyport .	14,073	7	2	—	14.28	—	—	—
Amesbury . .	10,920	3	1	—	—	—	—	—

Deaths reported 3,435: under five years of age 1,633; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fevers), 897, diarrhœal diseases 574, consumption 338, acute lung diseases 250, diphtheria 130, scarlet fever 41, cerebro-spinal meningitis 40, measles 36, typhoid fever 29, whooping-cough 27, erysipelas 9, malarial fever 9, small-pox 1.

From cerebro-spinal meningitis New York 20, Chicago 5, Cleveland and Worcester 3 each, Philadelphia, Brooklyn and Washington 2 each, Lynn, Haverhill and Gloucester 1 each. From measles New York 16, Pittsburgh 8, Brooklyn 6, Philadelphia and Cleveland 2 each, Chicago and Cambridge 1 each. From typhoid fever Chicago and Pittsburgh 7 each, New York 4, Philadelphia 3, Cincinnati 2, Brooklyn, Cleveland, Milwaukee, Nashville and Charleston 1 each. From whooping-cough New York 9, Philadelphia and Brooklyn 4 each, Chicago and Pittsburgh 3 each, Boston, Cincinnati, Nashville and New Bedford 1 each. From erysipelas New York 3, Chicago, Brooklyn, Boston, Washington, Pittsburgh and Milwaukee 1 each. From small-pox New York 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,322,429, for the week ending July 1st, the death-rate was 22.7. Deaths reported 4,496; measles 96, whooping-cough 93, diphtheria 88, scarlet fever 63, fever 42.

The death-rates ranged from 12.6 in Oldham to 41.6 in Preston; Birmingham 22.3, Bradford 24.2, Croydon 17.2, Hull 15.5, Leeds 21.8, Liverpool 37.0, London 22.2, Manchester 29.5, Newcastle-on-Tyne 17.7, Nottingham 17.7, Plymouth 28.8, Salford 26.7, Sunderland 18.2.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 8, 1893, TO JULY 14, 1893.

The order assigning CAPTAIN FREEMAN V. WALKER, assistant surgeon, to temporary duty at Fort Trumbull, Conn., is so amended, as to relieve him from further duty at Fort D. A. Russell, Wyoming, and to assign him to station at Fort Trumbull, Conn., until further orders.

FIRST-LIEUT. CHARLES F. MASON, assistant surgeon, July 2, 1893, promoted, to be assistant surgeon, with the rank of Captain.

MAJOR JAMES P. KIMBALL, surgeon, is relieved from duty at Fort Clark, Texas, to take effect at the expiration of his present sick leave of absence, and ordered to Fort Marcy, New Mexico, for duty.

CAPTAIN WILLIAM H. CORBUSIER, assistant surgeon, is relieved from duty at Fort Wayne, Mich., and ordered to Fort Supply, Indian Territory, for duty, relieving MAJOR PAUL R. BROWN, surgeon.

MAJOR BROWN, on being relieved by CAPTAIN CORBUSIER, is ordered to Fort Hamilton, New York, relieving MAJOR EZRA WOODRUFF, surgeon.

MAJOR WOODRUFF, on being relieved by MAJOR BROWN, is ordered to Fort Keogh, Montana, for duty, relieving MAJOR WILLIAM H. GARDNER, surgeon.

MAJOR WILLIAM H. GARDNER, surgeon, on being relieved by MAJOR WOODRUFF, is ordered to duty as attending surgeon and examiner of recruits, at Headqrs. Dept. of Dakota, St. Paul, Minn., relieving CAPTAIN WALTER REED, assistant surgeon, U. S. A.

CAPTAIN REED, upon being relieved by MAJOR GARDNER, is ordered to report to the Surgeon-general at Washington, D. C., for duty as curator of the Army Medical Museum, and as professor of clinical and sanitary microscopy in the Army Medical School.

RECENT DEATHS.

JAMES J. LEVICK, A.M., M.D., of Philadelphia, died June 25th, aged sixty-eight years. He was one of the visiting physicians to the Pennsylvania Hospital and to the Wills Eye Hospital.

J. D. MITCHELL, M.D., of Jacksonville, Fla., died July 15th, aged seventy years.

BOOKS AND PAMPHLETS RECEIVED.

Hypnotism, Mesmerism and the New Witchcraft. By Ernest Hart. New York: D. Appleton & Co. 1893.

The Spelling of Some Medical Words. By George M. Gould, A.M., M.D., of Philadelphia, Pa. Reprint. 1893.

Nursing; Its Principles and Practice. By Isabel H. Hampton. Illustrated. Philadelphia: W. B. Saunders. 1893.

The Meaning and Method of Life. By George M. Gould, A.M., M.D. New York: G. P. Putnam's Sons. 1893.

Woman's Medical College of the New York Infirmary, Twenty-eighth Year, Annual Catalogue and Announcement, June, 1893.

Report for the Year 1892-93, Presented by the Board of Managers of the Observatory of Yale University to the President and Fellows.

The Health Resorts of Europe. By Thomas Linn, M.D., with an introduction by Titus Munson Coan, M.D. New York: D. Appleton & Co. 1893.

A Manual of Diseases of the Ear. By George P. Field, M.R.C.S., Aural Surgeon and Lecturer on Aural Surgery, St. Mary's Hospital Medical School, London. Philadelphia: Lea Brothers & Co. 1893.

A Text-book of Medicine. By Adolf Strümpel. Second American edition translated by Herman F. Vickery, A.B., M.D., and Philip Coombs Knapp, A.M., M.D., with editorial notes by Frederick C. Shattuck, A.M., M.D. New York: D. Appleton & Co. 1893.

Lecture.

TUBERCULOUS PLEURISY.[1]

THE SHATTUCK LECTURE FOR 1893.

BY WILLIAM OSLER, M.D.,
Professor of Medicine in Johns Hopkins Hospital, Baltimore.

(Continued from No. 3, p. 57.)

(b) The secondary and terminal acute tuberculous pleurisy.

HERE reference is not made to cases of general miliary tuberculosis in which the pleural membranes are involved with other parts. A miliary eruption is very often secondary to a local tuberculosis in the lung, and under these circumstances the exudate is usually fibrinous. It is interesting to note that in the 101 post-mortems from my wards, in the cases in which tubercles were found on the membranes, only four had a simple fibrinous pleurisy. On the other hand, there were eleven instances of fibrinous pleurisy in persons dead of pulmonary tuberculosis in which there was no mention made of tubercles on the pleura. This accords with the well-known experience that a pleurisy in the course of a pulmonary tuberculosis is not always due to the presence of tubercles. Acute miliary tuberculosis of the pleura, with a sero-fibrinous or hæmorrhagic exudate, was present in only seven of the autopsies. In every one of these cases was the tuberculosis secondary to some other affection, or occurred as the terminal event in some long standing illness. Whether or not in an instance, for example, of acute pleurisy with effusion, coming on in an apparently healthy individual, and which, for the sake of argument, we may presume to be tuberculous, the condition of the pleura is that of an acute miliary tuberculosis, I have no personal knowledge; but in my experience the condition has almost invariably been, as just mentioned, a secondary or terminal process in some already existing affection. The following are illustrative cases: In the first instance there was a chronic anæmia, induced by the hæmorrhoids, with old foci of caseous disease at the apices of the lungs. The death resulted from miliary tuberculosis, involving chiefly the pleural sacs.

CASE II. Hæmorrhoids; anæmia; chronic tuberculosis; caseous foci in the lungs; acute miliary tuberculosis of both pleural sacs.

R. S., male, white, aged forty-seven, admitted October 21, 1891, complaining of bleeding piles. He has always been a healthy man; never has had any illness, except the hæmorrhoids, which have troubled him at intervals for nine years. During the past few weeks they have been much worse, and he has lost blood with every stool, having had three or four evacuations every day. He says that he has lost as much as a pint of blood at one time. He has gradually become very pale. At present the hæmorrhoids are not bleeding.

Patient is a pale but well-nourished man. On admission, the examination of the lungs was negative; the heart impulse was diffuse. The pulse was regular, small in volume. The spleen was not palpable, and there was no œdema. The urine contained a faint trace of albumin, but no tube casts. He was thought to have moderate grade of anæmia from bleeding piles.

About the middle of November the patient began to be delirious, but the temperature was not high, not more than 100° or 100.5°. He had slight diarrhœa, from three to six semi-solid stools daily. He did not seem very ill, and was generally up and about and dressed, though he talked in a rambling, incoherent way.

About November 28th he began to have dyspnœa, which gradually increased. The temperature had not changed specially since his admission; had been ranging from 100° to 101.5°, and very rarely reached 102°. On December 3d the note was that he was propped up in bed: very pale; lips and mucous membranes blanched; respiration 32, labored and wheezing. Pulse 120; chest hyperresonant in front; dulness at both bases; below the angle of scapula an absence of breath sounds. There was no expectoration. He continued to have three or four loose stools daily, and died on the 5th.

Autopsy. Large, well-built, well-nourished man, marked anæmia. Peritoneum is smooth. Over the mesentery, and the lower surface of the diaphragm, and in the pelvis, there are numerous elevated, translucent tubercles, some of them surrounded with areas of hyperæmia. The peritoneal surface of the intestine also presents numerous tubercles. The surface of the spleen and the contiguous diaphragm presents many tubercles.

Acute miliary tuberculosis of both pleural sacs, with about two litres of serous fluid in each. The membranes were covered with a thick, fresh fibrinous exudate, after the removal of which many miliary tubercles were seen. Both lungs were compressed; no cavities; but at the apices there were old and partially softened caseous masses, with many miliary tubercles. In the lower lobes there were only a few scattered tubercles. The spleen presented a few tubercles; no tubercles seen in the liver.

Intestines. One or two small ulcers, with irregular margins in the ileum. The mesenteric glands hard and caseous.

Meninges were œdematous, but presented no tubercles.

In the following instance the patient died of an acute entero-colitis, with an acute miliary tuberculosis of the pleura as a terminal event.

CASE III (abstract). Chronic entero-colitis; acute tuberculosis of the left pleura.

Jos. A., aged thirty-three, colored, admitted January 23, 1891, complaining of diarrhœa and colic. There was no history of tuberculosis in his family. He had gonorrhœal synovitis five years ago, and a chancre. For nearly a year he has been subject to diarrhœa. On admission, patient was emaciated and anæmic; afebrile. The physical examination was negative. He had four or five stools daily, yellowish white in color, and contained undigested food; no amœbæ were found. He was very anæmic, had moderate fever, temperature range from 90° to 100°. The diarrhœa was uncontrollable, and he gradually sank, and died on February 28th. There was found an extensive entero-colitis, chiefly of the large bowel, with irregular ulceration. Almost the entire costal pleura on the left side was the seat of an extensive eruption of miliary tubercles, quite fresh, with hæmorrhagic zones about them, and much fibrinous exudate.

[1] Delivered before the Massachusetts Medical Society, June 13, 1893.

These fresh adhesions extended along the diaphragmatic surface. The bronchial glands were caseous. There were no lesions in the lungs, except at the edge of the lower lobe, adherent to the diaphragm, there was a firm caseous mass, with some induration about it and colonies of miliary tubercle.

Post-mortem, we certainly see acute miliary tuberculosis of the pleura most frequently in the bodies of persons who have been under treatment for some chronic malady, affections of the heart and arteries, chronic Bright's disease, or scleroses of various sorts. Usually there will be found in these cases old foci of tuberculous disease, a caseous nodule at the apex, or in the bronchial glands, or in the mesenteric glands. Of late, attention has been called repeatedly to the association of tuberculosis of the serous membranes, most commonly of the peritoneum, with cirrhosis of the liver; but a number of instances of terminal tuberculosis of the pleura have also come under my care in this disease, and it may exist without having caused symptoms enough to attract attention. In one of my wards at Philadelphia Hospital an elderly man, with cirrhosis of the liver and moderate ascites, with dulness at the right base, died suddenly of hæmorrhage from the stomach. The effusion on the right side, which we thought to be hydrothorax, as it had come on without any special aggravation of the symptoms, proved to be acute miliary tuberculosis, with effusion. More frequently the symptoms are pronounced, as in the following case:

CASE IV. Fatty and cirrhotic liver; hæmorrhage from the bowels; bilateral acute tuberculous pleurisy.

Mrs. L., aged twenty-seven, admitted with hæmorrhage from the bowels and tenderness over the region of the liver, which organ was slightly enlarged. There was no jaundice. She was a hard drinker, and had been in failing health for some months. Signs of pleurisy were discovered on both sides, and she had a severe cough. She sank rapidly, and died within a week or ten days after her admission.

Autopsy. Left lung covered with a thin, fibrinous exudation, thickest at base and near the edges. In places, the membrane is studded with minute granular tubercles, which are best seen where the exudation is less abundant. The organ is crepitant throughout, a caseous spot is seen at apex, and a narrow fibroid area in the lower lobe. No disseminated tubercles throughout the substance. The right pleura presents a similar exudation, less abundant than on the left side. The costal pleura is thickly lined with false membrane, is congested, and presents small gray bodies scattered through the membrane. At the apex of the lung is a small caseous mass, with a cavity the size of an almond, in direct communication with a bronchus. In the neighborhood of this are several small groups of tubercles. The lower lobe also presents a couple of small caseous bodies, but no scattered tubercles. Liver weighs 2,200 grammes, is large and pale. Lobules distinct, bile-stained in centre. Organ is both fatty and cirrhotic. Other organs normal.

Such instances as the following are not rare in old hospital patients with cardio-vascular and renal changes. More than once I have mistaken a terminal tuberculosis of the pleura for hydrothorax.

CASE V. General arterio-sclerosis; primary tuberculosis of right pleura.

Joseph A., aged seventy, colored, laborer, admitted July 26, 1892, complaining of shortness of breath and swelling of the feet. No family history to be obtained. His wife states that he has been a perfectly healthy man all his life. She never heard him say that he had any illness. With the exception, some years ago, of a gathering under the left arm, he has been perfectly well. He denies the use of alcohol to excess.

His present illness began suddenly four weeks ago with a shaking chill, which lasted about half an hour, and was followed by pain in the stomach and shortness of breath. He has had no return of the chills, but has complained of abdominal pain. Two weeks ago the legs began to swell, and he thinks the abdomen was also slightly swollen. For about the same length of time he has been a little irrational. There has been slight cough, and he has had to sit up in bed to sleep.

Present condition. In bed, lying on the left side. He is somewhat emaciated; respiration rapid, 48; pulse 136, easily compressible, radials calcified; temperature 101°, rose in the night to 102.5°. He is not rational, and constantly mutters to himself.

Thorax. Resonance throughout the right front is good, but rather tympanitic; in the upper left front it is full, and somewhat tympanitic in character. Respirations everywhere accompanied by an expiratory groan, and in front they are harsh, and there are occasional râles, which, on the left side, are medium-sized. Behind the resonance is impaired at the right base, clear on the left side; on both sides respiration is harsh, and accompanied with fine, moist râles. Heart impulse is in fourth, fifth and sixth spaces; maximum in sixth, three centimetres outside the nipple line. Relative dulness at third rib. Sounds are feeble and heard with difficulty.

Patient was taken home August 11th; the dilatation of the heart had subsided under the use of digitalis. He had slight diarrhœa, which was checked with alum enemata. The signs of engorgement in the lungs disappeared and he had no pulmonary symptoms. The case was regarded as one of hydrothorax, secondary to the dilated heart in chronic arterio-sclerosis. Death occurred about two weeks after he left the hospital.

Autopsy (Dr. Flexner and Dr. F. R. Smith, abstract). The patient was found to have general arterio-sclerosis, with hypertrophy of the heart. The pericardium was smooth. The right pleura was thickened and the pleural layers uniformly adherent. The costal membrane measured about four millimetres in thickness, and was covered with tubercles, somewhat larger in size than miliary granules, and, as a rule, caseous. The underlying thickened infiltrated tissue was yellowish, and consisted of a diffusely caseous mass. The outermost layer was more fibrous. The pleura covering the diaphragm was greatly thickened and infiltrated. The lung was somewhat compressed, deep salmon color, and contained no tubercles. The left pleura was not especially thickened; no adhesions. There were small miliary nodules, however, on the visceral layer. The apex of the lung was somewhat retracted, and on the anterior edge of the upper lobe there was an area of caseous pneumonia, with a small central cavity. There were, however, a few scattered tubercles throughout the posterior part of the lung.

(*c*) *Acute tuberculous suppurative pleurisy.*

A considerable number of the purulent pleurisies, designated as latent and chronic, depend upon tuberculosis, but the fact is not so widely recognized that acute ulcerative and suppurative disease, of a most severe

type, may occur and run a very rapid course. In the following remarkable case the disease attacked a young, healthy woman of good family history, and set in abruptly with a chill and severe pain in the side. On admission there was dulness in the right side, feeble breathing, but there were features about the physical examination which made us a little uncertain about the nature of the case, and nothing was obtained on several aspirations. Within a few days, however, it seemed so clear that suppuration must be going on that Dr. Halsted was requested to operate. Instead of finding any large collection of pus there were small pockets varying in size from a marble to a chestnut, and though portions of ribs were resected in three different places no large collection was found. The symptoms persisted, and death took place about five weeks after the onset of the illness. Remarkable ulcerations were present throughout the right pleura, with pockets of pus between the adherent layers, no large accumulation, and an extensive acute miliary tuberculosis of the lungs. The tubercle bacilli were present in large numbers in the pus. Full details of the case are as follows:

Case VI. Suppurative tuberculous pleurisy; numerous pockets of pus; operation without benefit; miliary tuberculosis of lung.

Lizzie W., aged twenty-one, German by birth, was admitted to ward G, April 7, 1893, complaining of chills, fever, and pain in the right side.

Father and mother living and well; one sister living; no history of hereditary disease in the family.

She has always been a perfectly healthy girl. Has been in service; has only been in this country a short time. She had erysipelas of the head and face some months ago, and has not been quite so well since. She was seen by Dr. Salzer, who found signs, he thought, of effusion at the right base with high fever, and he ordered her removal to the hospital.

Present trouble began, she says, fourteen days ago with pain in the right side and fever. She had a chill about six o'clock, and had a sweat at night. The pain was of a dull character, and much aggravated on drawing a deep breath. There was no cough. The fever, pain in the side, and sweating have been the chief symptoms throughout her illness. She has been unable to work since its onset. The appetite is poor, and she has lost considerable in weight.

April 8th. Present condition. Small-framed, well-nourished young woman. Lips and mucous membranes of a good color; tongue slightly coated. Temperature on admission was 101°; this morning, at 10 A. M., it was 102.5°; pulse 88; respirations 28. Chest is well formed; good costal angle; both sides expand well; the right much less than the left.

On percussion there is flatness on the right side from the fourth interspace in parasternal line; from the fifth rib in mammary line; from the sixth in anterior axillary line. At the back there is flatness below the angle of the scapula. The breath sounds are clear in the infra-clavicular region, and as low as the nipple. Below this, behind and in front they are feeble, though clear. Behind, over the flat areas, respiration is feeble and distant. The vocal fremitus is absent over the flat areas. There seems to be a slight movable dulness at the level of the nipple in front. The cardiac impulse is in the fourth interspace in normal position. The sounds are clear, and of normal relative intensity. The abdomen is negative. The liver dulness reaches to the costal margin; the border was not palpable, and there is no pain on deep pressure. The urine is whitish yellow acid, 1,020; no albumen. It was thought probable that the case was one of empyema, and on the 10th an exploratory needle was inserted in the fifth space in the anterior axillary line, but nothing was obtained. The temperature range during the next week was very irregular, reaching sometimes to 104° or 105°. She had chilly feelings and heavy sweats at night.

On the 11th the following note was made: Pulse 130, regular, soft; she is propped up in bed; respirations are quiet. Patient lies somewhat on the right side. The left side of the chest moves freely. On percussion and palpation there is great tenderness over the sternum, particularly at the third right interspace and at the sternal end of the fourth costal cartilage. The line of dulness begins at the fourth space at the sternum, and passes through the nipple. The flatness extends across the sternum. Lower border of the liver is not palpable, but the flatness extends in the nipple line to costal margin. The respiration above the line of flatness is clear, below feeble, distant, and difficult to hear. Vocal fremitus, while practically absent in front, is to be felt in the axilla. In the back the line of flatness has not materially changed from that noted on entrance. On auscultation, as one approaches this line, there are fine, moist râles on inspiration, which are increased by coughing. The apex beat of the heart is not dislocated outward.

An exploring needle was again introduced; this time at the eighth space below the angle of the scapula, but with a negative result.

On the 12th the temperature was 105°; the pulse this morning was quieter, only 80 to the minute; tongue was not dry. There was to-day extreme sensitiveness along the right margin of the sternum, particularly in the third and fourth interspaces. The blood count gave over 5,000,000 red to the cubic millimetre, and 18,000 white.

It seemed evident that there was suppuration going on in the chest, and it was thought most likely to be an empyema, possibly diaphragmatic. The possibility also of a subphrenic abscess was considered, though this did not seem to be very likely, as the liver was not depressed. The points which made the case somewhat dubious were the extent of dulness and signs of effusion without marked dislocation of the heart apex, and without anything like a typical line of dulness and not of movable character. The absence of fluid also, on aspiration with a good-sized exploring needle, suggested that there was something unusual.

The case was transferred to the surgical department and on the 13th, Dr. Halsted operated.

Under ether an attempt was made to find the abscess cavity by means of an exploring needle, which was thrust into the right side of the chest in several places, where dulness was marked. Then a portion of the fourth rib over the painful spot was excised, and only a small pocket of pus found; portions of the sixth and of the eighth ribs were also removed, but only small areas of suppuration within the pleura were seen. The wounds were stuffed with gauze, discharged for a time freely. Tubercle bacilli were extraordinarily abundant in the pus. The patient died early on the morning of May 8th.

Autopsy (Dr. Barker). Body somewhat emaciated. Scars of the incisions mentioned above, and two of them had slight sinuses. On making the preliminary

median incision, pus oozed from beneath the skin over the sternum. On stripping back the skin, fistulous sinuses were seen close to the edge of the sternum in the second and third and fourth interspaces.

Thorax large; costal angle wide. Right pleural cavity has been largely obliterated, the visceral being intimately adherent to the costal pleura; both layers grayish-white in color, thickened and infiltrated. Over the lower lobe it is in places fully two centimetres in thickness, and it is adherent to the diaphragm. Tubercles have grown through the diaphragm and appear on the peritoneum. On this diaphragmatic surface of the pleura, there are a number of abscesses filled with greenish pus and cheesy material; the walls are lined with necrotic tissue. In front, between the pleura and the diaphragm, corresponding to about the seventh costal cartilage, there is a large recent abscess the size of a hen's egg, which has infiltrated the diaphragm and made an ovoid identation on the surface of the liver. Several of these intra-pleural abscesses exist along the spine, and have eroded slightly the bodies of the vertebræ. Here and there over the surface of the middle and upper lobes, between the layers of the thickened pleura, are recent abscesses, varying in size from a marble to a walnut. The whole lung is thickly studded with minute miliary and sub-miliary tubercles, gray and translucent.

On the left side there are no adhesions, and beneath the pleura there can be seen a few minute miliary tubercles, which are thickly set throughout the lung substance. The pleura is not at all thickened. The bronchial glands are somewhat enlarged, deeply pigmented and thickly studded with tubercles. The pericardium presents a few small miliary tubercles; no exudation. There is a small miliary tubercle on one leaflet of the mitral valve. The spleen is enlarged and soft, weighs 445 grammes and presents many miliary and sub-miliary tubercles. The same are present throughout both kidneys. In the ilium, Peyer's patches are reddened, and in some there are minute grayish-white and yellowish-white miliary nodules. The mucous membrane of the ilium, just above the valve, is completely studded with tubercles. Some are softened and breaking down, and there are slight superficial losses of substance. The mesenteric glands are somewhat enlarged and hyperæmic. There are also pale yellow areas. The glands along the aorta are enlarged, and many of them caseous. The glands along thoracic aorta are also enlarged and caseous. The cover-slips from the pus in the pleura show large numbers of tubercle bacilli. Agar Esmarch's tubes, made from the pleural pus, spleen, liver and kidneys, remain sterile.

2. *Subacute and Chronic Tuberculous Pleurisies.*

There are two groups of cases, with effusion, and the chronic adhesive form, the former being by far the most numerous.

(*a*) *With Sero-fibrinous Effusion.*

The process may be primary, or, at any rate, most extensive in the pleura, or secondary, to manifest tuberculosis of the lungs.

The primary constitutes an extremely important division of the tuberculous pleurisies, and here may be reckoned a not inconsiderable number of all the cases of the insidious form. The true character of the disease is frequently overlooked, and indeed for a long time there may be nothing positive on which to base a diagnosis. Though we speak of the disease as primary in the pleura, in almost every instance there are tuberculous foci in the lungs or in the bronchial glands, or the process has extended from the peritoneum. Frequently the cases are admitted to the hospital with acute manifestations, but with advanced pleural lesions evidently of long standing, and antedating the pulmonary tuberculosis. The following are illustrative cases:

CASE VII. Bilateral tuberculous pleurisy; acute tuberculosis.

Henry W., aged forty-three, admitted July 29, 1891. Rather more than a year ago, patient was in hospital for jaundice and was discharged well. He returns complaining of cough and shortness of breath. He states that his present trouble began about four weeks ago; he woke up in the night with shortness of breath; has had chilly feelings, though no rigors and had felt very weak. He has had some cough, very little expectoration, no pain; no œdema of feet. He does not think that he has lost any in weight. Temperature on admission was 102°; the following morning 103°; pulse 128; respiration 36. The urine is dark yellow in color, clear, no albumin; Ehrlich's reaction not present.

The chest is broad and deep, expansion fair, a little more on the left than on the right. Percussion is clear on the right side at the apex, and to the fourth rib; below which there was impaired resonance. On the left side a clear note to lower border of second rib; dulness from the second to the fourth, and from the fourth rib in axilla there is flatness. Defective resonance over the central portion of the lung behind and flatness at the base. In the left lung there are numerous râles at the apex, with pectoriloquy, and behind distant tubular breathing. Breath sounds are almost absent at the left base. On the right side there is flatness at the base, with distant tubular breathing. Effusion was suspected at both bases, and he was aspirated in the eighth right interspace behind, and a small amount of hæmorrhagic effusion found. On the following day he was aspirated at the eighth left interspace behind, and a few c. c. of fluid (hæmorrhagic) removed. The sputa contained tubercle bacilli. The temperature was high, from 103° to 104.5°. He became delirious, had rapid breathing, blueness of the finger-tips developed, and the pulse became much enfeebled, 130, and he died on the morning of February 4th.

Autopsy (Dr. Councilman). Large, well-developed, well-nourished man; circumference of the thorax in nipple line 93 centimetres.

Left pleural cavity partially obliterated by old adhesions, especially at the apex and posteriorly. The remainder of the cavity filled with about 300 c. c. of turbid, yellow serum with flakes of fibrin. Both layers of the pleura much thickened by a new gray vascular tissue, and covered with a gelatinous fibrin. There are many opaque white nodules beneath the membranes, and the thickening is marked. The layers can be peeled off as a continuous membrane, and beneath them can be seen opaque yellow and gray miliary tubercles. The right pleural cavity presented old adhesions only at the base, and it contained 350 c. c. of sero-fibrinous fluid, the surfaces covered with fresh gray fibrin; the pleura and the membranes slightly thickened.

The pericardium was smooth; heart presented nothing abnormal.

Lungs. At the apex of the left lung there is an irregular cavity measuring three by five centimetres, the tissue about it in a condition of gelatinous and tuberculous pneumonia. There are clusters of tubercules and miliary granulations scattered throughout the rest of the lung. The right lung presents a few scattered miliary tubercles without any very large areas of consolidation.

A few fine miliary tubercles were found in the kidneys; mesenteric glands presented a few small tubercles.

The condition of the pleura here antedated evidently the more acute onset of his final illness, and he was probably the subject of a latent tuberculous pleurisy, followed by a general infection.

Case VIII. Chronic tuberculous pleurisy with effusion.

E. S., male, aged thirty-one, colored, admitted January 12, 1891, complaining of cough, pain in the right side, and dyspnœa. He has had cough at intervals for a year; no hæmorrhage. About Christmas of last year he got very much worse, and since then has had high fever, night sweats, dyspnœa, and abundant expectoration. His family and personal history are good.

He is well-nourished; face, lips, mucous membranes and finger tips are cyanosed. Temperature, 102°; pulse 128; respirations 54. On the left side there was dulness from the second rib, and the heart was pushed over to the right side. He was aspirated and twenty-seven ounces of fluid removed. After aspiration, the chest was clear to the lower border of the third rib, below that dulness shading into flatness at the base. The temperature range was high, 102° to 104°, and he had a good deal of cough. The patient was aspirated again on the 23d, and one litre of fluid removed. The sputa was examined repeatedly, with negative results, until the first of February, when bacilli were found in moderate numbers. The fluid did not re-accumulate to any extent. Very marked defective expansion on the left side. Breath sounds were clear on the right side; fremitus was present on the left side to the base, though the dulness was still very marked, and distant tubular breathing with fine râles. The note states that there was no diffuse, general bronchitis, such as might occur with an eruption of miliary tubercles. Pulse became rapid; he had delirium; the temperature kept high until the 31st, and it fell to 98° on the 3d, when he died.

Autopsy (abstract). Right pleura adherent over entire extent; firm. Left pleural cavity contains about 1,200 c. c. of slightly turbid serum. Left lung compressed, tough, leathery, dark red; adherent posteriorly along the spine; lower lobe presented several firm tubercles. The pulmonary and costal pleural layers were thickened and tuberculous. Right lung presented, in the upper lobe, numerous firm, gray tubercles and caseous areas. At the apex a small cavity about two centimetres in diameter. The lower lobe was very œdematous. A few miliary tubercles scattered throughout the lung. Small ulcer in the left vocal cord. No tubercles in the liver or spleen; one small tuberculous ulcer in the intestines.

More commonly the pleurisy sets in insidiously, and is the most prominent feature in the case. There may be no suggestions of tuberculosis, but in some instances the history of a previous attack or of hæmoptysis may arouse suspicions. After aspiration the fluid re-accumulates, and repeated tappings may be necessary. The patient regains a certain measure of health, with greatly thickened pleural membranes, and persistence of the dulness on the affected side. When these cases are carefully followed, a certain number of instances develop unmistakable pulmonary tuberculosis, or they die of a general infection. The following illustrative cases are of interest, from the fact that they were under observation for longer periods than is usual in hospital practice.

(To be continued.)

Original Articles.

PHAGOCYTOSIS.[1]

BY HAROLD C. ERNST, M.D.

The idea of presenting a paper upon the subject of phagocytosis suggested itself to me some time ago; for it had seemed to me, from certain incidental conversations, that perhaps too little attention was being paid to facts that are being brought out in connection with it.

This idea has been strengthened by the publication of the volume upon "La Pathologie Comparée de l'Inflammation," containing the lectures by Metschnikoff, delivered at the Institute Pasteur two years ago. Of course, much has since been done, but, so far as the facts there related have to do with phagocytosis, this work is in very much the direction of that which preceded it, and a short review of the whole subject does not seem to be uncalled for.

This book of Metschnikoff's appears to mark an epoch in comparative pathology, and yet very little attention has been paid to it. Although, as the author says, the theory of phagocytosis is not explained in its entirety in it, nevertheless there is enough of the subject included to amply repay the labor of perusal, to those who are interested.

Before coming directly to the subject matter of the paper, a few words of explanation are necessary.

Ever since the knowledge of the infectious diseases was so enlarged as it has been by bacteriological studies, explanations have been sought of the methods by which bacteria are disposed of in the living animal tissues when they have once effected an entrance; and equally has a solution of the phenomena of immunity, either natural or acquired, been searched for. These phenomena can depend only upon some property of the tissues attacked, that renders them an unfavorable soil for the development of the bacteria seeking to gain an entrance — a fact that is easily proven by the *toxic* effects of sterilized cultures when introduced into animals that are insusceptible to the effects of the living bacteria, from which these cultures are derived.

As offering some explanation of the facts that are matters of common knowledge — the conditions of immunity and the commoner ones of recovery from infectious disease — there have been a number of theories advanced, and supported with more or less vigor and ability.

The bacteria are known to produce their effects in

[1] Read before the Boston Society for Medical Improvement, April 10, 1893.

several distinct and definite ways: (1) by mechanical obstruction pure and simple; (2) by abstracting from the tissues of the body the material necessary for their own development, and, by so much, depriving the tissue-cells of nutrition necessary for *their* development; (3) by the production, during their growth, and, either by direct exciting metabolism, or, as the result of the chemical affinities of the elements left in unstable equilibrium after those necessary for the bacteria have been abstracted, of new chemical compounds that are destructive to their own further activity, or even to their further existence.

These processes being generally known to occur — the actual destruction of the bacteria or the limitation of their activity, going so far, as to make this latter none at all — have been explained upon several grounds.

Immunity — using the term generally, to express *any* degree of limitation of the activity of bacteria — has been explained upon the ground that (1) the bacteria during their growth in the living tissues, produce the loss of some material in the tissue-cells that is necessary for bacterial development, and that this loss is not supplied to the tissue-cells for a definite period of time, this time varying in length and covering the period of "immunity" of the individual organism against that special disease. This supposition is purely theoretical and very little evidence of any kind has been brought forward to defend it. (2) The bacteria are supposed to produce, during their development, and in the same way as they produce the elements hurtful to the tissue-cells, certain other elements, or rather compounds, that are destructive to their own development and existence, and that these new compounds, the result of bacterial development, are eliminated from the living organism only slowly; so that during their elimination and during their presence only, the organism is protected against a second invasion of the bacteria — in other words, for that length of time is immune against a second attack of the disease. If this supposition be correct, and if these substances are the result of the development of the bacteria, it offers no explanation of the existence of these immunizing substances in animals *naturally* immune to any special disease — at least, no more explanation than that offered by the immortal "Topsy" for her own existence, "she growed." Nevertheless, a reference to Behring's latest publication, "Die Blutserum Therapie," in which his theories in regard to the occurrence of immunity are elaborated, will show that there is a strong tendency to neglect, in the light of the more recent researches, all that has gone before, or, if the suspicion may be given expression, much that has not been done in Germany. The author, in seeking to show the various methods that have been adopted for procuring immunity, gives the following tables, that furnish a satisfactory summary of the subject:

I. Showing the method of action of the agent producing immunity. It occurs (1) by the destruction of the living cause of the disease; (2) by hindering the growth of this living cause; (3) by the destruction of its infectious properties (which result, according to Behring, is effected by the taking away from the bacteria, of their power of producing their poisonous products); (4) by the destruction, in the infected organism, of the poisonous material produced there; (5) by such a change of the central organs or of the living cells, that they obtain a higher degree of resisting power against the nerve toxines and cell toxines produced by the bacteria.

II. The conditions necessary for the production of immunity are as follows: A, a passive state of the organism (exhaustion theory and the theory of non-favorable culture medium); B, a functional state of the organism, divided into (1) a function of the living condition of the organism (the contest theory), and (2) a function of the dead condition of the organism.

The question of whether phagocytosis plays any part in this process is completely ignored, unless it be what is meant by the expression "the contest theory"; and certainly no stress is laid upon it, nor is it considered in any of the statements made during the course of his book.

So much and so excellent work has been done upon this part of the subject, however, that it is not possible to ignore it entirely — as many of the workers of to-day are inclined to do — and even with the brilliant results that have been reached by methods, of which phagocytosis probably does not form a part — exemplified in this work upon "Blood-serum Therapeutics" of Behring and others, there remain many processes occurring in the natural course of disease, in which this especial property of the cells must be reckoned with.

The theory of phagocytosis is simply this — that in many of the processes that follow the introduction of bacteria into living tissues, certain cells of the fluid and solid tissues of the body act as actual phagocytes; they possess the property of collecting about the invaded region, and of englobing and destroying, by absorption, the living bacteria, that without their interference would flourish, gain access to other portions of the organism, and produce an attack of an infectious disease.

The cells that are possessed of this power, do not, as is often stated, come solely from the leucocytes (the white blood corpuscles), but under certain conditions and in certain diseases, perhaps in all, some at least are produced from the fixed cells of the surrounding tissue; and in such case they have characteristics that make them easily recognizable.

One of the first results of experimental work that called attention to this englobing property of certain cells seen in inoculation experiments, was that following the employment of injections of anthrax bacilli in animals that were susceptible and in those that were insusceptible to attacks of the bacilli. In the first case, that of the susceptible animals, few leucocytes were found at all, and those that were present were not found to contain any bacteria; in this case the micro-organisms were found in enormous numbers in the blood-vessels, but lying free in the blood-current. An entirely different appearance presented itself, however, when the same bacteria were injected into animals that were immune to their attacks. In this case, there was found a much larger number of leucocytes, and they were seen to be crowded with large numbers of bacilli; whilst none, or almost none of the bacteria were to be found in the blood-current or in other parts of the body than that in which they had been introduced. This appearance was found to be present, not only in animals that were possessed of a natural immunity to anthrax, but in those that had been made artificially immune as well. The natural sequel, therefore, was that this complete contrast should have attracted attention, and should have been seized upon

in order to explain, not only immunity pure and simple, but the destruction of the bacteria in the body and the recovery from an infectious disease as well.

It is to Metschnikoff that the first statement and amplification of this theory is due (and, lately, to certain of his followers and proselytes also); and his assertions have been supported by the most brilliant series of minute and painstaking investigations of recent years.

Starting with known observations, made during many years upon unicellular organisms, he sought to apply the results of these observations to the single cells of more complex beings. It has long been known that the unicellular plants are capable of englobing granules of pigment, which remain for a longer or shorter time in their interior, and that soluble substances, taken up in the same way, would disappear gradually, and that it is in this way that nutrition is obtained. Observations were further made, showing that in not exceptional cases, these same single-celled organisms were capable of englobing living bacteria, and that bacteria thus taken up would gradually disappear in the same way as did the particles of nutritious material; the characteristics of this disappearance being a gradual paling of the rod, a granular appearance, and finally its complete fading from view.

These phenomena were seen to be of regular occurrence, not appearing as variations and unusual accompaniments of special conditions; they were distinctly a provision of Nature for the nutrition of the amœbæ, and for their protection against the attacks of hurtful agencies.

At the same time, the action was so similar to what has already been said had been observed in the case of animals immune to anthrax when inoculated with the bacilli of that disease, that it was inevitable that a comparison should be drawn between the two, and a similarity of action sought to be established. To carry out the idea, the living tissue is to be looked upon as a collection of single cells, certain of them endowed with the power of independent action under certain circumstances. Under most of the conditions of vitality, of course, there is, and must be, a certain oneness of life, necessary for the higher vitality of the organism of which they are but constituent parts; but under exciting force of differing kinds this unity is done away with, and to some classes of these cells of living tissue is ascribed the duty of protection and repulsion that may be carried out in various ways.

Therefore, the fundamental idea of phagocytosis is that living multicellular tissue is to be looked upon as a collection of single cells capable of individual action, in classes, under special circumstances. This being the case, it remained to show if any of the cells of complex tissue had this power of independent action; and the question did not need to be asked long before an affirmative answer could be made. In fact, it had already been made, in the researches of Cohnheim and all his followers, upon the migratory powers of the white blood-corpuscles in response to any irritation of the hurtful kind; and all that was at the time known in regard to these bodies was in the nature of a prop of any theory that explained this responsive action by a tendency towards resistance to an invasion of hurtful elements. But at first the idea was that their migration was simply for the building up of a protective wall against the further advance of the attacking force, the nature of which was not at all understood until modern methods of bacteriology came into use. Then only, did the conception occur, that there might be something more in the part played by the leucocytes than a simple negative opposing force, and the development of this conception led to the experiments upon phagocytosis.

Metschnikoff's first paper upon the subject was published some ten years ago, and has been followed rapidly by others in the same direction, until the mass of material that he has collected is enormous, and absolutely astonishing to one who becomes familiar with it for the first time. The literature this experimenter has produced is scattered through the pages of many journals, both French and German, although of late years most of his original work is to be found in the volumes of the *Annales de l'Institut Pasteur*.

As applied to the complex, multicellular organisms, much of the original work was done with the bacillus of anthrax, both in its full strength and in an attenuated condition, and the experiments were conducted upon *both* warm- and cold-blooded animals — in the former case upon rabbits, guinea-pigs, and rats, and in the latter upon daphnia, other small animals, and especially upon frogs. With the latter, many of the experiments were, of necessity, made upon them at a temperature above that at which they ordinarily lived; and while, at their normal temperature, they are insusceptible to the action of the anthrax bacilli, this immunity disappears when their bodies are raised to such a temperature as will permit of the development of these bacilli. According to Metschnikoff, the immunity at the lower temperature is due, not alone to the unfavorable condition for the growth of the bacilli, but also to the phagocytic action of the white corpuscles, which at this temperature — their normal one — are found to be full of the bacilli, a fact which is not observed when the animal is raised to a higher temperature and becomes susceptible to the disease; he explaining this susceptibility by the hindrance to the action of the white corpuscles by their unnatural temperature, whilst Baumgarten remarks that frogs raised to such a temperature would die anyhow, but omits to state how this occurs so early as is the case after inoculation with anthrax bacilli.

The experiments, however, were not limited to work with the virus of anthrax, either attenuated or of full virulence; but investigations have been made upon many other diseases, notably chicken-cholera, tuberculosis (as a type of a chronic inflammation), septicæmias of various kinds, and serous inflammations. In the latter forms of reaction, it is true that very few cells possessed of phagocytic action are to be seen; but, as Metschnikoff says, it is equally true that these forms of inflammation are as yet but incompletely understood, and if, because a thing has not been seen, its existence be absolutely denied, an unscientific conclusion would be reached.

As a result of all this work, which has been supported by what Metschnikoff considers as of equal importance, the pursuit of similar studies upon invertebrates as well as vertebrates, the general conclusion has been reached from the observed phenomena, that, in nearly all (if not all) of the infectious diseases, an important part in the destruction of the invading bacteria is played by certain individual cells endowed with phagocytic powers. Many interesting properties of the cells of animal tissues have been brought out as well.

In the first place, it seems to have been definitely

determined that the phagocytic power is not confined by any means to the leucocytes, derived from the white blood-corpuscles, but that the single nucleated cells of a larger size than the ordinary multinuclear bodies commonly seen in any purulent exudation are derived from some of the fixed tissue elements in the neighborhood of the reacting locality. These are the "macrophagocytes," which are always possessed of a single nucleus, and are usually larger than their neighbors, and are so called to distinguish them from the "microphagocytes" that are multinuclear and are derived from the leucocytes or white blood-corpuscles; the main distinction in all cases being the possession of more than one nucleus, and not the size, which may vary very slightly. (The further division of the leucocytes may be found in Metschnikoff's book on "Inflammation," p. 131.) These macrophagocytes are possessed of the power, under certain conditions, of englobing and destroying the microphagocytes as well as bacteria; and in those cases in which they are freely formed, seem to have more active phagocytic properties, as against bacteria, than have the microphagocytes. In a comparatively recent work, Metschnikoff also describes the formation of phagocytes from the invaded muscular tissue, to which he has given the name of "myophagocytes."[2]

Another of the exceedingly important properties of the cells, that these recent investigations has brought out, is that of "chemiotaxis," which is the property that movable cells have of responding to irritation of any kind — either chemical, as in the case of simple chemical irritants, or vital, as in the case of invading bacteria, the latter, of course, being frequently double in its action, both chemical and vital. This response to external irritation is of an active kind, and is manifested by actual movement towards, or away from, the irritant material. These two classes of movement are called positive chemiotaxis, and negative chemiotaxis, according as the movement is towards or away from the invaded part; and the property is manifestly an exceedingly powerful one, for it is seen to occur in all kinds of experiments and natural phenomena of the sort that would call it out, and is an occurrence familiar to every one who has ever seen a swelling in any of the vital tissues, the result of any sort of irritation.

From all the work that he and his followers have done in this direction, Metschnikoff reaches his well-known conclusions in regard to phagocytosis: that it is an active factor in the production of immunity from an infectious disease or in the recovery from such a disease; and that there is always an effort made in this direction, by such cells of the organism as may be possessed of this property of englobing and destroying bacteria.

The objections that have been raised to his conclusions are many, and have come very largely from German observers. Negative evidence in such a question may well be excluded; and an examination of the positive facts brought forward is exceedingly interesting.

Among the most active opponents of the assertions made by Metschnikoff was Christmas-Dirckinck-Holmfeld.[3] Defining his idea of Metschnikoff's idea of phagocytosis, he says that it is the ability of the leucocytes of various animals to "eat" (and thereby destroy) invading bacteria, and that immunity against infectious disease depends upon this ability of the leucocytes; that every organism is immune to all parasitic diseases, the parasites of which can be eaten by the phagocytes of the organism, whilst an organism cannot defend itself against any microparasite whose chemical or physiological properties are such that it cannot be destroyed by the leucocytes. This theory was at first received with enthusiasm until Baumgarten objected to it.[4] An answer to his objections being made by Metschnikoff,[5] Ribbert[6] made certain experiments with the aspergillus fumigatus and flavescens, by injections into the ear vein of rabbits. As a result, he saw a wall of leucocytes built about the spores (in the lung, the liver, and the spleen), by means of which their sprouting was circumscribed and was sometimes prevented entirely; and he concluded that the leucocytes prevented the development by suffocation, that is, by preventing the access of oxygen to the spores.

Wyssokowitsch[7] found that after the injection of non-pathogenic bacteria into the blood-vessels, some of them were taken up by the endothelial cells of the capillaries, but he could determine no activity of the white blood-corpuscles in taking up the bacteria, and therefore concluded that phagocytosis plays but a subordinate part in producing the harmlessness of bacteria. Such a conclusion at the present time, from such experiments, would certainly not be justified.

The special theoretical objections raised by Christmas-Dirckinck-Holmfeld are that Metschnikoff's experiments were made mostly upon cold-blooded animals kept at a temperature of 36°C., and that his experiments upon warm-blooded animals were very few; that it is true enough that in warm-blooded animals and in virulent diseases, like mouse-septicæmia and tuberculosis, there is manifest a tendency on the part of the cells to take up the bacteria, but it is also true that the bacteria of suppuration are almost never seen in the cells. He considers, also, that not enough attention was paid to the changes in the local site of the inoculation, and devoted his experiments to showing that these may be of the utmost importance. He used rabbits, mice and white rats for animals, and anthrax bacilli for material; the latter because Metschnikoff had done so, and also because they are easily seen, easily cultivated and characteristic. Rabbits and mice are very susceptible, whilst rats are very insusceptible — in fact, almost immune — to inoculations of these bacilli; so that all sorts of variation of effect may be seen by the use of these three kinds of animals. "The results show, constantly, a variation in the changes at the point of inoculation, in accordance with the greater or less susceptibility of the animal towards the material employed." Subcutaneous inoculation in mice and rabbits gave, twenty-four hours afterwards, a slight amount of clear serous exudation, that contained many anthrax rods, but no (or almost no) pus-corpuscles, and the number of these did not increase as time went on; there was only a local œdema, never any suppuration. With rats, on the other hand, the conditions found were different. In all these animals experimented upon, pus constantly occurred in the secretion from the wound, the amount varying with the virulence of the material used and the greater or less susceptibility

[2] Annales de l'Institut Pasteur, 1892, No. 1.
[3] Fort. der Med., 1887, S. 401.
[4] Berl. klin. Woch., 1884; and Lehrbuch der Path. Mykol., 1886.
[5] Ueber den Kampf der Zellen gegen Erysipelkokken: Virch. Arch., Bd. 107.
[6] Unt. ü. d. Schicksal Path. Pilze im Organismus: Deut. Med. Woch., 1885, No. 31.
[7] U. d. Schicksal d. ins Blut injicierten Mikroorganismen im Korper des Wirbelthieren: Zeit. f. Hyg., Bd. I., No. 1.

of the individual animal to the virus; the older the rat, the more marked the amount of pus.

Employment of attenuated virus gave a very different result, so far as rabbits and mice were concerned; in this case there always occurring a small localized suppuration.

The results of his inoculation experiments were, briefly, as follows: inoculation of anthrax bacilli of full virulence produced in very susceptible animals (rabbits and mice) a very slight (or almost no) reaction at the seat of the inoculation; suppuration *never* occurred; the inoculated bacteria quickly found their way throughout the organism by means of the lymph- and blood-channels, where they developed with great rapidity and produced the death of the animals. In slightly susceptible animals, the inoculated material produces a perceptible suppurative reaction in the tissues, and this pus-formation is in proportion to the greater or less susceptibility of the animals experimented upon; the less the susceptibility the greater the amount of pus-formation.

Pus-formation, therefore, plays no slight part in the determination of the greater or less susceptibility of animals towards anthrax; and not only in this disease, but the same thing is true of many of the infectious diseases. It is a common observation that the most virulent infectious diseases — those in which death occurs in a very short time (from hours to days) — are precisely those in which pus-formation does not occur; whilst those that are slow in action, in which fatal results occur late, if at all, are equally those in which marked pus-formation is seen.

This is perfectly true; but the facts may easily be interpreted in the line of believing that, where pus-formation does not occur, the phagocytic power of the body cells has been overcome by some influence upon their chemiotactic properties, rather than to make it a ground for rejecting recorded observations, or for relying upon the explanations of our author that follow. He considers that the means by which the bacteria are rendered harmless, are to be ascribed much more to chemico-biological action than to any power of the cells to absorb corpuscular elements, which is Metschnikoff's "anomalous supposition." He further states that by the observation of the behavior of the pus in insusceptible animals, it can be seen that the cells play no such part as is ascribed to them by Metschnikoff; for example, in the pus in rats inoculated with anthrax, and in animals in which the white corpuscles could with ease destroy the bacilli, very few of the bacteria are to be found in the cells; most of them are lying free in the fluids, and very few of them in the cells, whilst these show a slight tendency only to destroy the bacilli. The inoculation of attenuated anthrax-cultures in rabbits and mice shows the same thing — only rarely is there a rod in the cells; and in rabbits inoculated with cultures of full virulence, when pus-corpuscles are found at all, it is only here and there that a rod is to be seen in a cell; and the same is true of mice.

These results, the author claims, and with justice, are in sharp contrast to those of Metschnikoff, who, he says, used mostly warm-stage preparations from warm-blooded animals, with no observations in the living animals, most of his work being done upon cold-blooded animals, and therefore inapplicable to the warm-blooded races.

He gives other experiments, tending, as he thinks, to show that the bacilli are killed before phagocytosis can be supposed to have had time enough to take effect, and considers that the overcoming of these bacteria must be due either to the absence of oxygen or else to the production, during their development, of some material hurtful to their own existence.

(To be continued.)

CASES OF REMOVAL OF THE APPENDIX VERMIFORMIS BETWEEN ATTACKS OF RELAPSING INFLAMMATION.

BY A. T. CABOT, A.M., M.D.,
Surgeon to the Massachusetts General Hospital.

The contrast between an operation for the removal of the appendix vermiformis in an interval between attacks of inflammation, and the same operation done in the midst of an attack, is very striking.

When summoned to operate in the midst of an attack, the surgeon finds the patient usually exhausted by want of sleep and by pain. The field of operation is not aseptic, and the treatment previously directed against the inflammation with hot and stimulating fomentations, often of sufficient strength to cause blistering, has put the skin in a condition that makes asepsis impossible.

Then, the distention of the intestines, due partly to the inflammation, and partly to the opium which has been administered, interferes very decidedly with the operation. The tympanites, lifting the abdominal wall forward, increases the depth at which the appendix lies, so that it greatly adds to the difficulty of bringing it to the surface and removing it.

The presence of pus in these cases, too, adds a very serious complication. When the pus is shut up in a circumscribed cavity, the walls of which are composed of agglutinated coils of intestines, it may become impossible to properly separate and remove the appendix without liberating the pus among the healthy coils and infecting the general abdominal cavity. This condition may thus prevent the ideal completion of the operation by the removal of the appendix.

But suppose the operation completed. It is almost invariably necessary to establish drainage, and for this purpose to leave the wound in the abdomen but imperfectly closed. This imperfect closure of the wound leaves great liability to hernia.

After this picture of the difficulties which surround the operation done for an acute appendicitis, look at the condition which obtains when the operation is done in an interval of health between attacks. With thorough antiseptic precaution, the surgeon approaches the patient, who has been put in the best possible condition for the operation. His bowels have been emptied of their contents until the abdominal wall is flat and soft. His strength has been attended to, and he is in the best physical condition; his kidneys are acting well; his skin has been thoroughly prepared, so that there is no danger of contamination from the outside; and after the opening has been made, the appendix, though perhaps tied by adhesions and possibly so held by them as to be removed with difficulty, is, at least, not surrounded by pus, and the dissection necessary to free it can be carried out under the intelligent guidance of the eye.

The collapsed condition of the intestines gives the

operator room to work, and at the same time to shut off the rest of the peritoneal cavity with sponges during the manipulations. At the end of the operation, there being no necessity for drainage, the abdominal wound can be tightly and carefully sutured, so as to reduce the danger of any subsequent hernial protrusion to a minimum.

An operation done in an interval of health has, then, very great advantages over an operation done in the midst of an attack of inflammation. It would, therefore, seem wise, in cases of recurrent appendicitis (in which the attacks are sufficiently severe to make it seem probable that an emergency operation may be required in some of them), to accept the lesser risk and to do the operation when the patient is comparatively well. Especially is this the case when, owing to the patient's habits and inclinations, it is extremely irksome to have the danger of an attack hanging over him and interfering with his arrangements for business and pleasure.

It is impossible to lay down any rules by which the question, to operate or not to operate, shall be decided; but this judgment must be made in each case for itself.

The cases which I have operated upon and those which I have seen in the hands of other surgeons, have shown me that there is always a distinct reason for the tendency to recurrence of inflammation. In one of them it was found that, through the inflammatory action about the appendix, nature was effecting a cure of the condition. In the others, however, there did not seem to be any likelihood that the process was tending towards a cure. The following cases are reported as a contribution to the knowledge of the conditions which are likely to be found in these patients.

CASE I. The first operation of this sort that I did was on a young man of twenty-five, in November, 1890. It has already been reported at length, and I will only mention here the fact that I have recently heard of him as having been perfectly well since the operation.

The appendix in this case was strongly bent backward beneath the cæcum. It was somewhat enlarged, with thickened walls, which were infiltrated with round cells. The mucous membrane was destroyed by an extensive ulceration of its surface.

CASE II. Philip McD., twelve years old, was sent to the Massachusetts General Hospital, July 7, 1891, by Dr. Cowdrey, of Stoneham, with the following history:

In November, 1890, he had his first attack of severe abdominal pain. This was accompanied by vomiting and constipation. The pain was felt across the whole abdomen and lasted for three or four days. Since that time he had had twelve distinct attacks and many slight threatenings of an attack. At first there would be three or four weeks between the attacks, but latterly they had followed each other with intervals of ten days or less. The pain in the later attacks had always been distinctly localized in the right iliac region, and a tumor had been noticed in the right side. This tumor had not disappeared in the last two months, although it diminished in size between the attacks.

He was kept under observation for three or four weeks, and then, being in a quiescent state, he was operated upon.

An incision was made in the right linea semilunaris, and the tumor, which was then about the size of a mandarin orange, was found to be made up of omentum and coils of intestine bound together. These being separated and pulled aside, the end of the cæcum was found, and by following the tendinous line in its wall, the appendix was found to be sharply curled back beneath the caput coli and closely adherent in this position. Persistent attempts were made to separate it from its connection with the cæcum, but it was found impossible to do this without serious danger of extensive laceration of the bowel. It being thought that in its closely adherent condition, it was not likely to give subsequent trouble, and in the belief also that the attacks of pain might have been partly due to the adhesions in the region about, the operation was abandoned and the wound was closed by sutures.

The bowels moved on the second day, and the boy made an excellent recovery, going home at the end of the third week.

I subsequently heard from Dr. Cowdrey that he had one or two slight feelings of discomfort soon after he got home, and that since that time he has been perfectly well.

CASE III. Harry W. L., aged twenty-two, a machinist, entered the hospital October 19, 1892, with the object of having the appendix vermiformis removed in an interval between attacks of inflammation.

He had his first attack of pain in this region ten months and a half before entrance and since that time he has had eighteen attacks, which occurred about every two weeks when working, but when he was idle the intervals were lengthened to six or eight weeks. The earlier attacks did not keep him from his work. The pain was not very sharp at first, but it was distressing and gradually increased until it usually induced vomiting. The pain was always mainly localized in the right iliac region, but spread from there in many of the attacks over the abdomen, which then became much distended. The attacks usually passed off slowly and in the intervals between them he was perfectly well. The patient said that he could feel a lump in the region of the appendix just after each attack. He was a slender man of medium size.

Examination revealed but little in the region of the appendix. Deep pressure showed slight tenderness and there was a little mass to be felt about where the appendix might be expected. An examination of the urine showed the presence of a few hyaline and granular casts, with some blood and some epithelial cells adherent; due probably to a slight renal hyperæmia. He was kept quiet and treated with the liberal administration of water and with counter-irritants over the kidneys for a few days, when this condition of the urine gradually disappeared. While waiting for this, the patient had a slight attack of pain in the region of the appendix. Nothing could be felt during this attack, although it was severe enough to induce vomiting. There was no rise of temperature during it.

The patient finally being in good condition, the operation was done on October 26, 1892.

Incision was made in the usual place, the cæcum presented and the appendix was readily found. It was little, if at all, increased in size; the end of it was free, but at the middle it was tied down by a band of adhesions which bent it upon itself to a right angle. From this point to the cæcum there were many adhesions, but they yielded readily.

The meso-appendix having been separated, the ap-

pendix was tied close to the cæcum and then divided, a little cuff of the serous coat having been turned back before the division of the muscular and mucous coats. This cuff was then turned over the stump and stitched with one or two intestinal sutures.

After removal it was found that the appendix, which was somewhat thickened by chronic inflammation, contained a very small concretion. The wound was closed by silk sutures and the patient made a good recovery. He was out of bed on the twelfth day, and went home at the end of three weeks. Since that time he has remained perfectly well.

CASE IV. Frederic C. A., aged nineteen, a clerk, was sent to me by Dr. Cleaves, of Medford, in October, 1892, with the history that he had had two sharp attacks of appendicitis. The first of these attacks had occurred a year and a half before, and the last one had occurred in the previous April.

The first attack began with a very sharp pain in the front of the abdomen in the right iliac region. The pain gradually increased until the third day, when the patient took to his bed. There was tenderness in the region of the appendix, but no distention. Nausea, vomiting and diarrhœa accompanied the attack, and the bowels continued loose for a month. The pain was very severe and required the liberal use of morphine for its control. One week after the commencement of this attack a lump the size of an orange was noticed in the right iliac region, and this could also be felt through the rectum. As convalescence was established, this lump gradually and completely disappeared.

He was then well, except for occasional slight pain in that region, until the second attack. This was like the first, except that it only lasted one week and no tumor was discovered. The patient had been pretty well since this last attack, but insisted upon having the operation done, as he dreaded the possibility of another attack, and feared the chance of its occurring when medical aid was not easily to be had.

The examination of the abdomen was wholly negative. After consultation with Dr. R. H. Fitz, it was decided to accede to the patient's request, and the operation was performed November 1, 1892.

The incision was made in the usual place and the cæcum was readily found. The appendix extended directly down from it into the pelvis. It was very adherent and stretched far down into the pelvis, being continued by a broad adhesion from its end, which was apparently attached somewhere down near the rectum. It being found difficult to separate the appendix from this adhesion, the meso-appendix was tied off, and after the appendix had been ligatured close to the cæcum, it was cut away. It was now found possible, by traction, to separate the end of the organ from the adhesions in the pelvis, and it was removed. The wound was closed with silk sutures, after carefully cleansing the abdomen. The appendix contained a concretion about the size of a large bean.

On the second day it was found impossible to keep the patient quiet, he having no pain and moving about in bed readily. He was sitting up on the twelfth day, and was discharged at the end of three weeks. December 21st, having been on a vacation, he wrote that he was feeling finely — "In fact," he said, "I don't believe I ever felt better."

CASE V. Philip C., twenty-one years of age, applied to me in January, 1893, for the removal of the appendix vermiformis. He had had five attacks of appendicitis, the first in March, 1889, when he was in bed for two weeks and had a tumor in the ileo-cæcal region. In May of the same year he had a similar attack, but more severe with a larger tumor. This time he was sick for three months, and Dr. G. K. Sabine, who attended him, thought there was suppuration about the appendix. The next attack came in October, 1892, lasting three weeks and followed by another soon after, lasting two weeks. On December 17, 1892, he had the last attack before he entered the hospital, which also lasted two weeks. In these attacks there was a distinct tumor to be felt.

The operation was done January 11, 1893. The incision was made in the usual place, about two inches long. The appendix was readily found, but was very adherent to the omentum and was twisted upon itself and adherent to its own mesentery. The adhesions were freed with the finger; but in separating the omentum from the angle made by the sharp bend in the appendix, a tear was made from which a few drops of pus oozed out. The appendix was readily separated from its mesentery and drawn out. After a cuff of the serous coat had been turned back, a ligature was tied around the muscular and mucous coats, and the appendix was cut off. The cuff of the serous coat was then stitched over the stump.

The patient made a good recovery from this operation, somewhat retarded, however, by suppuration of the outer part of the wound. It seems probable that this became contaminated at the time that pus escaped from the appendix, as the most thorough precautions were taken in every other respect to protect the wound from infection. I saw him last about February 15th, and at that time the wound was thoroughly healed, and he was having no discomfort of any kind.

Dr. Whitney describes this appendix as being constricted in the middle and bent upon itself. Its lumen was not obliterated at the point of constriction, as a fine bristle could be passed through it.

Microscopic examination of the constricted portion showed the glandular layers considerably destroyed, irregular and infiltrated with round cells, which could also be followed out into the muscular coats. Adherent to the tip of the appendix was a small, firm mass, which showed a muscular coat encircling it, but a lumen entirely filled up with connective and fat tissue. It seems probable that this was a portion of the tip which had become obliterated and constricted entirely off from the rest. The tissues about the base of the appendix were quite normal.

It is noticeable that in all but one of these cases, the appendix was sharply bent upon itself. In one, at least, there was a very decided narrowing of the lumen at the angle. The bend was so sharp in each of them that it caused a constriction at that point, and I am inclined to regard the constriction of the lumen of the appendix as in great measure responsible for the recurring attacks of inflammation.

When an appendix which is congenitally bent upon itself and thus narrowed, or which has become so by an attack of inflammation, is affected by a catarrhal process, the fluid secreted in the distal portion cannot readily find its way back and discharge into the bowel. This leads to the distention of the part shut off. If the pressure finally overcomes the resistance at the point of occlusion, the fluid escapes into the intestine, and the pain caused by the stretching of the wall of the appendix ceases. This course of things would ac-

count for the frequently-repeated, mild attacks seen in some of these cases.

After this was written I saw the following case, which seems to illustrate this point, and in which the reported observations have been carefully made; the patient being himself a physician with a lax abdomen, in which careful and accurate palpation could be obtained.

He is thirty-three years old, and has for six or seven years been subject to attacks in the right lower segment of the abdomen. They have been variable in frequency, sometimes being but three or four weeks apart, and again there being a period of six or seven months without one.

There is apt to be a little premonitory discomfort in the abdomen; but when the sharp attack comes, the pain is agonizing, and sometimes accompanied by vomiting. The severe pain usually lasts from one and a half to three hours.

He has made careful examinations of the cæcal regions during these attacks, and his observations have been confirmed by other good observers.

Early in an attack the appendix may be felt as a distinct tumor which is not especially sensitive. The pain is at first paroxysmal in character; later the paroxysms often run together in such a way that the pain is constant, with occasional exacerbations. During the course of the attack, the region of the appendix becomes more and more sensitive to pressure. The appendix may be felt contracting "like a uterus" during a paroxysm.

A constant phenomenon is the final, sudden cessation of pain immediately following the only retching or vomiting of the attack. There has never been any disturbance of urination, or any after trouble in the bowels.

The pain during the attack is referred to the abdomen in general, more in the region of the umbilicus. It is not localized in the cæcal region. After its sudden cessation there is left a little local tenderness, a sense of stiffness, especially in walking, and a small tumor in the region of the appendix, all of which symptoms pass off in twenty-four or forty-eight hours.

This seems to be distinctly the history of an accumulation of fluid in the appendix causing pain by distention; which pain is finally relieved by the escape of the fluid into the bowel. If the occlusion is so complete that the fluid cannot escape, it may be absorbed, or it may break through the wall into the peritoneal cavity.

I have at autopsy seen one case in which an appendix which showed little evidence of inflammation, but which had in a previous attack been occluded, had ruptured and discharged its contents, setting up a general peritonitis. Although the escaped material usually sets up a severe peritonitis, in some cases it is probable that the peritoneum is able to absorb and so dispose of an effusion of this sort. In the fifth case that I have reported, there can be but little doubt that the appendix had been previously ruptured; for the gentle separation of the omentum at once revealed an opening beneath it.

The occurrence of a large tumor in this case in one of the early attacks, points to the probable existence of an abscess at that time. Its subsequent disappearance was due either to the absorption of the pus, or to its gradual discharge through the perforated appendix or into the bowel at some other point.

The fourth case is interesting as being the only one in which a considerable concretion was found; and in spite of the presence of this foreign body, there had been no attack of pain for seven months.

It is possible, and I think probable, that the position of the appendix accounts for this immunity from pain. It was adherent in such a way that it was held stretched in a straight line, and as its lumen was not obstructed, the fluids forming in it had an easy road of escape into the bowel.

My remarks upon the advantages of an operation done between attacks over an operation done after the formation of pus and adhesions, may be applied with modified force to the operation in the midst of an attack, and the considerations urged there clearly set forth the importance of operating early, when the attack is of such severity as to indicate the probable necessity of interference. I find that I am more and more inclined to immediate operation when the presence of a sharp attack of appendicular inflammation is established; but I still see occasional cases in which the inflammation is of so mild a grade as to make it seem wise to wait the subsidence of the attack, with the intention, if it is repeated, of operating in some interval of health.

One consideration which has sometimes led me to delay operation, has been the difficulty of accomplishing a thoroughly antiseptic operation in the surroundings in which we often find these patients; and with the object of making this occasional objection more rare, I wish to suggest to general practitioners that it would be wise, *in the presence of abdominal symptoms pointing to the possible necessity for surgical intervention, to always apply antiseptic fomentations, so that when the surgeon is called, he shall find an aseptic field of operation.*

Since this paper was read, an interesting article has been published upon this subject by Dr. William T. Bull, in the New York *Medical Record* for March 18, 1893. In Dr. Bull's cases he found, as I did, that there was generally some malposition of the appendix, which tended to reproduce the attacks. This was usually either a sharp bend, or a constriction in the appendix.

He has collected seventy-six published cases, with one death. In his collection of cases he includes my first case, which had been previously reported. Adding to these my other four cases brings the number up to eighty with but one death.[1]

It is to be feared that these statistics may be, in a measure, selected cases as successful cases are likely to be reported, while those that turned out unfavorably may not have been yet published. Even allowing something on this score, these results are certainly very encouraging. If a surgeon by the operation can offer a risk of but one and a half per cent., he may, I think, consider this a better chance than that which the patient would take if not operated upon.

Within a couple of months I have seen a man who had had two mild attacks, and who finally had a severe attack, of which he died, although the operation was done as soon as he was seen, at the end of the second day. The condition found was a sloughing appendix and a general purulent peritonitis. This is one example of many, in which mild attacks have finally led up to a severe and dangerous one.

[1] Since this paper was in press I have operated on two more of these cases and they have made good recoveries. In both, the appendix was sharply bent, and fastened in that position by adhesions.

New Instruments.

A SIMPLE SUBSTITUTE FOR THE LEITER COIL.

BY FRANK B. SPRAGUE, M.D., PROVIDENCE, R. I.,
Assistant Surgeon to the Ear, Nose and Throat Department, Rhode Island Hospital.

THE accompanying cut illustrates a rubber bag made for the purpose of applying cold or heat to the mastoid region. A clamp (not shown in the cut) securely closes the neck, making it water-tight. It is applied with the wide part over the mastoid, the clamped end uppermost, and the auricle protruding through the opening. A piece of tape, fastened in the rings above and below and passing under the chin and over the head, where it is tied, holds it in place securely; fastened in this way, it may be worn while the patient is sitting up or in the recumbent posture, and by reversing the clamp it may be worn on either side.



This simple apparatus is a good substitute for the Leiter Coil, and is more convenient for many cases in private practice. When filled with cracked ice it will serve its purpose for about an hour, being therefore much more convenient than the cold compresses commonly used, which require changing every two or three minutes, and entail a wetting of the skin, which is liable to excoriate it and add to the discomfort of the patient. It can also be used as a hot-water bag if desired.

NOTE — The bag is manufactured by the Davol Rubber Company of Providence, R. I., and can be obtained of dealers in surgical appliances at a nominal price, within the reach of a dispensary patient.

Medical Progress.

RECENT PROGRESS IN FOODS, DRUGS AND ARTICLES OF DOMESTIC USE.

BY B. F. DAVENPORT, M.D.

THE CHEMICAL DIFFERENCE IN COMPOSITION BETWEEN COW AND HUMAN MILK, AND THE MEANS FOR CORRECTING THEM.[1]

IN his paper before the Medical Society of Munich, upon a better method of sterilizing milk, Professor Soxhlet has pointed out that although this would remove the more important difference, yet it did not give to cow's milk all the properties which the natural food of the infant possesses. There still remains differences of a chemical nature which should also be removed.

Of those differences the following are the more important: (1) the different manner in which their caseins coagulated; (2) their different proportions of lime-salts; (3) the difference in their absolute amount of nutriment, and in the proportion of the separate ingredients to each other.

[1] By Prof. Dr. F. Soxhlet, Münchener Med. Wochenschrift, January 24, 1893.

The first of the above differences has hitherto been considered of the greatest practical importance, because the less easy digestibility of the cow casein has been ascribed to its manner of coagulation; for cow's milk, when either acid or rennet has been added, produces a firmer curd than does human milk. We, however, now know that its manner of acting with rennet is alone of importance in this regard, and as this is quite a different process for its action with acids, all the conclusions hitherto based upon its action with muriatic acid or with this acid and pepsin are without any real significance as to its use as an infant food.

The difference in the manner of coagulation is not a sufficient ground for inferring a chemical difference in the caseins themselves. The firmness of the curd produced by the rennet of the stomach depends entirely upon the concentration of the casein solution, the amount of soluble lime-salts present, and upon the acidity of the solution.

With cow's milk all three of the above conditions are strongly unfavorable for its manner of coagulating. For cow's milk contains about twice as much casein, six times as much lime, and about three times as great acidity as does human milk. No wonder that with such a composition its coagulum is leathery, while the other is fine and flocculent. By proper dilution with water and neutralization, however, can cow's milk be so altered as to coagulate very much like human milk; yet it cannot be made to act exactly like it, because that the amount of lime-salts present cannot be lessened. The dilution with water has long been used as a practical means of lessening their differences. The addition of alkalies to reduce the acidity to that of human milk has been a second practical method. But a cow's milk so neutralized cannot be sterilized without suffering a marked alteration, for the milk-sugar being acted upon, the milk becomes brown and acquires a burnt flavor. Human milk would undergo a like change if sterilized, even without any addition. In neutralizing the cow's milk, therefore, it must be done after the sterilization, and best just before using by adding to each 100 grammes (or about three fluid ounces) 0.1 gramme (1.5 grains) of bicarbonate of soda, which may be in the form of a lozenge such as is prepared by apothecaries. This correction of the acidity is useful whenever a particularly firm curd is formed or the stomach secretes a larger amount of acid or of lime-salt than usual; otherwise every complication or opportunity for a renewed infection of the milk had better be avoided.

The more the milk is diluted with water the more flocculent becomes the curd which is formed. But this addition is limited by other conditions which are as important for nutrition as fineness of the curd. By too much dilution the volume of food to be taken becomes either excessive, or the absolute quantity taken too little for a satisfactory growth. An increased consumption of water increases the waste of albumin and of fat, and hinders the growth of the body. Furthermore, the increased excretion of urine disturbs the child and interferes with its well being. The chief disadvantage of too much dilution lies plainly in too little supply of nourishment, as a simple calculation shows. According to the investigation of E. Pfeiffer, a nursling of eight to nine weeks in age consumes daily 900 grms. of breast milk, a bottle-fed child given a like quantity of a mixture of one part cow's milk with three parts of water would receive but 8 grms. of

albumin while the breast-fed child had 20.6 grms. Of total nutriment, the child at the breast would receive 113 grms., while the artificially-fed child only 29 grms. The latter, upon the base of albumin consumed, would be receiving not 900, but only 350 grms. of breast milk, while upon the base of total nutriment, the equivalent of only 230 grms. of breast milk. To satisfy its needs, it must, in place of the 900 grms. of breast milk, consume of the threefold diluted cow's milk 2,250 grms. for the albumin, or 3,600 grms. for the total solids. Such a disproportion of nutriment is a crying evil. Water, by ever so careful a sterilization, will never become breast milk. It will increase the number of the wet diapers but not the weight of the body.

Milk which has been boiled gives a very finely flocculent curd with rennet, and requires much more of the ferment. This alteration is in proportion to the duration and the high degree of the heating. It would be erroneous, however, to infer therefrom a more easy digestibility of boiled or sterilized milk, or indeed to assert the opposite, as some have done. Within the stomach boiled milk is reconverted to the condition of an unboiled milk as regards its relation to rennet. Through the heating, the soluble lime-salts which are necessary for the action of the rennet, are rendered insoluble. But in the stomach, by the entrance of a small quantity of acid, or more probably of soluble lime-salts there secreted, the original proportion of soluble lime-salts is restored or even a little increased. Boiled milk will therefore often coagulate into a firmer curd within the stomach than the unboiled milk would out of it. In artificial experiments upon digestion without the stomach this regeneration of boiled milk must be taken into consideration, not to be led into such wrong conclusions as have already been drawn. Additions of mucilaginous fluids, as barley water, oatmeal decoction, or of arrowroot or other starches, calves'-foot broth, etc., have no other influence upon the curdling of milk by rennet than so much water. The conclusions of the favorable influence of such additions upon curdling were based upon experiments with acids, and not upon actual curdling experiments in the stomach of nurslings. As to the nutrient value of such decoctions, erroneous conclusions are easily drawn from their substantial appearance. As a rule, however, they are only about one per cent. mucilage of starch, a fluid very poor in nutriment. Such fluids may, nevertheless, be useful in many cases, although their hitherto considered cause may be erroneous.

The confounding of substantial appearance and nutrient value has played an important rôle in estimating the nutrient value of children's foods, which in spite of roasting and baking still contain starch but a little altered, and which, therefore, although boiled with much water, still form a thick mass. If one adds a little active malt-extract to such a food while warm, it is changed into a thin broth, which in spite of its thinner appearance is of increased nutrient value, for the starch paste has been changed into sugar. Such preparations have proved useful in that they have had to be freshly made and boiled for each meal. This indirect advantage, however, has now been more completely and with less trouble reached through sterilization.

The difference between cow and breast milk in regard to mineral constituents is principally that the former contains two to three times as much; that it has four times as much phosphoric acid, and six times as much lime as breast milk. It has also a notable excess of phosphate of lime over that needed for the growth of the bones. This is not used, but is thrown off in the fæces in the form of an excess of lime soap. In both kinds of milk the dissolved lime, which plays such an important part in the coagulation of milk, exists principally in the form of citrate of lime. Any increase of lime-salts in a milk is not only useless but harmful, in so far as it increases the firmness of the coagulation. Soda or potash alkaline salts act in the opposite way.

The most important difference between the two kinds of milk lies in their different amounts of nutrient substance, and the varying proportions of the single ingredients; for the effect produced by foods depends essentially upon the absolute quantity of the material supplied and upon the proportions they bear to each other. When there is so great a difference in both respects as between cow and breast milk a different nutrient action is to be expected. These grosser differences need removal before the lesser ones are attended to. According to J. Konig, upon the average of the analysis of 793 cow and of 107 breast milks, the following percentages were obtained:

	Water.	Albu'ds.	Fat.	Sugar.	Ash.
Breast milk	87.41	2.29	3.78	6.21	0.31
Cow milk	87.17	3.55	3.69	4.88	0.71
Cow milk excess	..	1.26	..	..	0.40
Cow milk deficit	0.24	..	0.09	1.33	..

According to the analyses as given in Hammarsten's "Physiologische Chemie," breast milk contains upon the average 2.01 per cent. of albuminoids, 3.52 fat, 5.91 sugar. By diluting cow's milk with half its volume of a six-per-cent. solution of milk-sugar, a mixture is obtained which contains just as much albuminoids and sugar, but about 1.32 per cent. less fat than breast milk. It then becomes a question how to attain the normal fat percentage of breast milk. Biedert has recommended the use of cream in place of milk; while Soxhlet had in 1886 recommended the strippings of the milking to avoid a strongly infected cream. Both of these methods present great difficulties. Especially are means for estimating the percentage of fat wanting. In the mixed milk of normally-fed cows we possess a food of a constant and well-known composition. We know how much nutriment is furnished by such a milk; in the other cases we loose this advantage. Furthermore, an over-rich milk cannot be sterilized without the fat globules running together and breaking up the emulsion, which is so important in the absorption of the fat. Upon practical grounds, therefore, we must choose the less correct but safer rule of making up the deficient one-third fat by the addition of another substance as nearly equivalent to it as possible. The fat of food acts in the body as an economizer of albumin, it yields heat or energy and is assimulated as fat into the body. All these functions, the carbohydrate already present, the milk-sugar, can also accomplish, according to the experiments of Rubner 243 parts of milk-sugar are equal in dynamic energy to 100 parts of fat. The 1.32 per cent. of fat wanting in the milk mixture can therefore be supplied by 3.19 per cent. of milk-sugar.

By adding to cow's milk, therefore, half its volume of a 12.3 per cent. solution of milk-sugar, one would obtain a mixture containing the same amount of nutrient materials as breast-milk, with only the slight

change of one-third of the fat being replaced by its equivalent in milk-sugar:

	Breast Milk.	Cow's Milk, with a half-volume of 12.3% sol. of milk-sugar.
Water,	87.41%	85.30%
Albuminoids,	2.29	2.37
Fat,	3.78	2.46
Fat replaced by sugar,	..	1.32
Sugar equivalent,	..	3.19
Sugar, natural,	6.21	3.25
Sugar, natural deficit,	..	2.96
Total sugar,	..	9.40
Ash.	0.31	0.47

It still remains to be considered whether milk-sugar is really the only rational addition for the milk, or whether this may not be replaced by another, possibly a still better or at least a cheaper substance.

The milk of all animals contains no other carbohydrate than milk-sugar along with small quantities of similar substances. It is not in their blood, but is a product of the milk gland. Further than in the milk (and in cases of over-accumulation in the urine also) milk-sugar is found nowhere else either in the animal or vegetable kingdom. It is the only carbohydrate on which the young of all mammals are fed. This is so marked an indication of the best source from which material is to be obtained for making up the deficiency in cow's milk, that it would be useless and superfluous to seek for anything better. That starch is a most unsuitable substitute for milk-sugar there cannot longer be any doubt. As regards the soluble products of the conversion of starch, dextrin and the sugars, the former is chemically and physiologically much further removed from milk-sugar than either cane, grape-sugar or maltose.

Adults who live upon mixed food consume starch as their principal carbohydrate. It is changed by the digestive ferments mostly into maltose, and in a less degree into dextrin. Indirectly maltose is the principal nutriment of most adults. Since nurslings possess only in a very slight degree the ability of converting starch into sugar, one could relieve them of this labor, and convert the starch through a malt-extract into maltose and dextrin, thus furnishing them the normal carbohydrate of adults in a form ready for direct absorption. This has in fact been done in Liebig's broth which is a wheat-flour converted by malt-extract, and in similar preparations, which have served a good purpose as additions to cow's milk.

Nevertheless, there are still so important differences between milk-sugar and the other sugars that one can regard neither maltose, cane or grape sugar as a complete substitute for milk-sugar. It is not only in regard to the natural occurrence of milk-sugar and its characteristics, that it is peculiar, but also because of its very peculiar behavior in the organism, that milk-sugar occupies an exceptionable position in the sugar group. Attention has not hitherto been directed to this point, although milk-sugar has frequently been suggested as an addition to cow's milk. The imitation of nature, a procedure which in similar instances is certain not to fail and has not hitherto been sufficiently insisted upon, for milk-sugar has been comparatively little used in the practice of infant feeding, while the most unnatural additions, such as preparations of starch and other kinds of farinaceous food, have occupied the chief place. It will be useful, therefore, to particularize the most important chemical and physiological differences between milk-sugar and the other sugars, so as to establish the indispensability of milk-sugar for the purpose, and to show that the exclusive indication of this carbohydrate as a natural food for infants is a well-founded adaptation.

(1) Milk-sugar, with raffinose (which does not here come into consideration), is the only sugar, which, by heating with nitric acid, produces mucic acid. The other sugars produce saccharic acid.

(2) Cane, grape sugar and maltose are converted, by ordinary alcoholic ferment, into alcohol and carbonic acid; milk-sugar remains unaltered. Milk-sugar is in general, more resistant to fermentative changes.

(3) It is only one-third as sweet as cane sugar, so one can add three times as much before inducing an unpleasant sweetness. In proportion to its action as a sweetener, it has more the character of a food, so that it can be also put to other food purposes in so far as its strong laxative action does not hinder.

(4) According to the investigations of Lusk, Abbot and Otto, milk-sugar is not changed like grape, cane and fruit sugar or maltose into glykogen. Hence, Voit infers from its action with diabetics, that it is more easily oxidized in the organism than other sugars. According to Bischoff and others, it passes most readily into the urine, because, according to Voit, it is not converted directly into glykogen and thus removed from the circulation.

The following particulars, drawn from the investigation of P. Albertoni, first published within two years, are of special interest in regard to the exceptional position of milk-sugar to the organism.

(5) Maltose and cane sugar are the most quickly absorbed, milk-sugar the slowest; of the former, 70 to 80 per cent. within an hour, of the latter, 20 to 40 per cent., according to the concentration, are absorbed.

(6) The accumulation of the quickly absorbable sugars, cane, grape and maltose, in the blood, induces changes in the functions of the circulatory apparatus which lasts until the excess of sugar disappears. The blood pressure rises, the vessels expand, and the pulse beat increases. The circulation is so much increased that it is doubled. Milk-sugar also exerts a peculiar influence. It increases the blood pressure, but not the frequency of the pulse. It even reduces it, but the systole becomes more extended. The increase of the pressure depends upon the direct excitant action of the sugar upon the heart and its vessels, while the slowing of the pulse depends upon the specific action of the milk-sugar upon the heart. Albertoni regards the sugars, not only as foods and condiments in their usual sense, but also as specific excitants for regulating the circulation. It is from this point of view, not indifferent whether milk-sugar be replaced by other sugars, for on account of its slower absorption and easier oxidation, it does not so easily accumulate in the blood, and furthermore, its exciting action is different and peculiar.

(7) While other sugars are quite completely absorbed from the stomach, a large proportion of the milk-sugar consumed is always to be found in the small intestines. Some while after the taking of a milk-sugar solution the stomach and intestines together will always contain more fluid than was taken, and the small intestines will contain more mucus and bile than usual. This explains the laxative action of milk-sugar and it is used for this purpose. The laxative action which milk has upon many is to be ascribed to the sugar. Traube prescribes it in doses of nine to sixteen grammes to be taken before breakfast in half a litre of warm

milk. Albertoni commends it in doses of twenty grammes. This specific action of the sugar renders it a particularly valuable adjunct to cow's milk. The frequently solid consistency of the fæces of bottle-fed infants is certainly due to the small amount of milk-sugar in their food, and probably the indigestibility of cow's milk casein may be due to the same cause. It must, however, be remembered that the laxative action of milk-sugar depends not only upon the quantity, but also upon the concentration of the solution; and much diluted solutions, like much diluted cow's milk, will not have this action.

(8) Of especial interest are, finally, the recent investigations of Albertoni concerning the so-called chemotactic action of milk-sugar. W. Pfeiffer has shown that many organisms endowed with locomotion, as bacteria, flagellatæ, volvocineæ, fern spores, etc., are attracted or repelled through the exciting action of certain materials. If one fills a capillary tube, closed at one end, with a strongly attracting substance, such as a one-hundredth-per-cent. solution of peptone or of meat extract, and immerses it in water containing such organisms as have been named, they will hasten to its mouth and collect within the tube. White blood-corpuscles will act in like manner and swim into a capillary tube, which, filled with an attracting substance, is introduced under the skin. Professor Buchner has shown that bacterial protein, vegetable casein and albuminates are the strongest chemical excitants for leucocytes. In like manner Albertoni has investigated the exciting action of the various kinds of sugar upon the white blood-corpuscles, by inserting capillary tubes filled with a five-per-cent. solution of the sugar under the skin of animals, and after twenty-four hours staying, examining their contents. In kittens he found that with grape-sugar the white blood-corpuscles were excited, with cane-sugar they were but little, while with milk-sugar they were unusually excitable. Although Albertoni in giving his opinion as to the significance of the chemotactic action of the white blood-corpuscles suggests that such susceptibility to attraction facilitates the transport of digested and metamorphosed material to the anatomical elements of the tissues, just as the red corpuscles transport oxygen to them. It must also be remembered that, according to Pfeiffer's observation, this attractive influence does not always indicate natural adaptation, for poisons act as attractive materials, while other good nutritive material, as glycerine, exercises no excitant action. So much, however, is certain that milk-sugar exerts a very strong excitant action upon the leucocytes of the newly-born, while cane-sugar has no such action at all. So striking is this difference that it is scarcely possible to regard it as destitute of significance. In any case, this behavior of milk-sugar is calculated to mark very distinctly the physiological position which milk-sugar occupies among the sugars. Furthermore, Pfeiffer has already remarked the much stronger chemical exciting action of milk-sugar in that he has shown that a one-per-cent. solution of milk-sugar had as strong an attraction for bacterium termo as a ten-per-cent. solution of grape-sugar.

DR. ERNEST HART, on his return to England said: "It is idle and foolish for any British doctor who has time and the moderate means at command, to think of spending his autumn elsewhere than in America."

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. T. BOWEN, M.D., SECRETARY.

Regular meeting, Monday, April 10, 1893, the President, DR. C. F. FOLSOM, in the chair.

DR. H. C. ERNST read a paper on

PHAGOCYTOSIS,[1]

which was illustrated by lantern slides.

DR. R. H. FITZ: I hardly feel able to enter into a discussion of Dr. Ernst's paper. I have listened with great interest, and I think we all ought to congratulate him on the fairness with which he has stated the theory. I was somewhat interested when he said that the objections which were being raised to the theory emanated largely from Germany. I do not think that statement should pass without question. Certainly some of those working in behalf of the theory were Germans. When I was in Germany two years ago, several of the Germans with whom I talked in regard to the matter were very definitely of the opinion that there was a good deal in the theory, and that, practically, is, as I understand, the position at the present time. Certainly so far as it represents a theory it seems to give a very satisfactory explanation to a considerable number of facts that occur, and the illustrations Dr. Ernst has given us are striking instances of the relations between the cells and organisms. The phagocytic action is not necessarily applied to all bacteria, but there are certain bacteria which seem especially under the influence of this action. So far as protection is concerned, I remember as a student hearing the statement that there was no better protection to a wound than a pus poultice, and this phagocytic action of the cells as shown to us to-night seems to be an illustration in modern scientific method of what was then a popular belief.

A point which suggested itself to me in connection with Dr. Ernst's statement of the theory was, it might be that certain diseases were not so bad after all, at all events in certain directions. We are all inclined to look upon the disease leukæmia as a very serious affection. It distinctly is, but from the protective theory of phagocytic action it would seem the more white corpuscles a person had in him the better he would be able to resist certain bacterial influences and it is possible that investigations in this direction may show that the leukæmic individual is much less likely to suffer from certain diseases than one who has fewer white corpuscles.

DR. H. JACKSON: We have all been much interested in hearing this explanation of the Metschnikoff theory, and as Dr. Ernst says, an immense amount of work has been done, perhaps notably by the Germans, manifestly opposing the theory as promulgated by Metschnikoff. Of course, the German school who find in the blood-serum some anti-bacterial agent, do not consider phagocytosis as an important element in the destruction of bacteria. The earliest work was, I think, a paper by Nuttall, who repeated Metschnikoff's experiments with the frog, and drew the conclusion, from a very long series of experiments, that there was something in the blood-serum and other fluids of the body which possessed anti-bacterial prop-

[1] See page 85 of the Journal.

erties other than was present or could be explained by phagocytes. Later experimenters have extracted from blood-serum and from other fluids of the body a chemical product, not yet a pure chemical product, but a product obtained from blood-serum by precipitation, which apparently possesses the properties of the blood-serum. As Dr. Ernst says, a large amount of negative evidence is of no great value, and as Metschnikoff says that we cannot deny the existence of a process because we have never seen it, so we may draw arguments against the theory of Metschnikoff from the few positive pathological phenomena which are observed, namely, the relation of bacteria to the cells in certain well-known diseases. In diphtheria, for instance, when it has been produced by inoculation in guinea pigs, there is found a serous, jelly-like exudation at the point of the inoculation. There are found a large number of the bacilli of diphtheria in the leucocytes, but the leucocytes are, as far as we can judge from pathological study, dead and not living. Their cell protoplasm is broken up. The nuclei are not stained with clearness as in living fresh cells, so that it seems that we must draw the conclusion that the bacilli are destroying the cells rather than that the cells are destroying the bacilli. The commonest instance which comes under the observation of all who work at all in bacteriology, is the relation of the organism of gonorrhœa to the cells. In this disease the micro-organisms are found essentially in the cells. In examining a specimen you find a very large number of cases where there is only left a very slight outline of what was apparently a cell. Such an outline may be traced by staining reagents. Again, masses of the gonococci are found in such relation to one another that it appears most probable that they represent a small area which was originally a cell, that the cell has disappeared, and on the other hand the micro-organisms themselves, so far from showing any evidence of degeneration, are apparently in their most active growth.

As to the conclusions which we can draw from the diagrams which have been thrown upon the board, in a certain number of the pictures shown by Dr. Ernst, the bacteria were rather pale, and in some instances broken up as if they had been destroyed by the cell. In many pictures we could trace the nuclei perhaps on the edge of the cell, but at least a third, and in many instances two-thirds of the outline of the cell had disappeared. These were not micro-photographs, but taken from camera lucida drawings, that is, the observer could trace only the bits of nuclei, a large number of bacteria in close relation to the nuclei and a portion of a formerly whole cell membrane. In one of the diagrams which Dr. Ernst threw upon the board was a macrophagocyte taken from the eye of a pigeon, in which the microphagocyte was represented by a small round body and protruding through it was a long thread-like body, showing that the bacillus in the cell was not dead, but had multiplied until a long thread of bacilli was formed. In that instance the macrophagocyte had not destroyed the bacillus. Also one of the pictures represented what Dr. Ernst said was a dead macrophagocyte being carried about by the bacilli. In that instance the macrophagocyte had been overpowered by the bacilli, and not the bacilli by the macrophagocyte.

DR. A. K. STONE: I think we have all got a very clear idea of the subject that has been presented to us to-night, and that Dr. Ernst has given us very faithfully and carefully the theory of Metschnikoff. It is perhaps well to think that the work of Metschnikoff as it started out is the one which has brought about all the work that has since been done in the blood-serum therapy. The work in regard to blood-serum was undertaken by the men who followed up the work done on the theory propounded by Metschnikoff, and I should take exception to what Dr. Ernst said that it was confined to the German school. Certainly there are extremely good men in France and Italy, and also even in Japan, who are contributing work in this other line, so that I do not think it is fair to say that it is simply the German school that is opposing it, and much of this work is accepted, especially the Italian work, and is quoted by Metschnikoff himself in his book on inflammation, as being work that he accepts and considers as faithful work, in which he could not find any flaw. Almost all the Germans, even those who strongly opposed his theory, state very decidedly that there is a certain amount to the theory and that the phagocytes do play a limited rôle protecting against and taking up the bacteria, but consider that it is of minor importance. There are some arguments showing that only a small part is played by the phagocytes. One is that injection of ptomaines into an animal where there were absolutely no bacteria present, only the toxic products that have been made during their growth, is able to kill the animal without any active phagocytosis. Another fact is that bacteria may be present in great numbers and produce most unfavorable results without bringing about phagocytosis, so that neither chemically nor mechanically is it necessary that the phagocyte be present. Then from analogy we know that all the processes of the body that go for its nourishment and for the removal of waste material from the body for cleansing it, are the result of most complicated chemical reactions, and this would hint that the probability is that the inflammatory process is primarily way down at bottom a chemical process rather than the simple action of the cells themselves.

DR. ERNST: The remark I made about the German school seems to have been misunderstood. I did not mean to say they were the only ones that opposed the theory. Dr. Jackson quotes gonorrhœa and the appearances upon certain slides as indicating that certain of the bacteria do overcome the phagocytes; a condition of things that of course has nothing whatever to do with phagocytosis, because it would be absurd to suppose that any class of phagocytes could invariably and always overcome the bacteria.

ANATOMICAL SPECIMENS.

DR. WALTON: This is a cerebral tumor from a patient of Dr. Hooker, of Springfield, who called me in consultation February 22, 1892. The patient had had intense headache, vomiting and recurring aphasia, with paralysis of the sixth nerve on the left. When I saw him he had some aphasia, word-blindness, and word-deafness at times. He also had loss of vision on one side of both eyes (hemianopsia). This gives us a very good opportunity to study the localization of tumors outside the motor tract. This did not involve the motor tract either directly or indirectly. The mind-blindness pointed to disturbance in the angular gyrus. Word-deafness would show lesion in the posterior part of the first temporal lobe. Aphasia would

show some disturbance either in the island of Reil or at the lower end of the ascending frontal convolution. Paralysis of the sixth nerve would point to disturbance at the base of the brain, but as there was no other basal paralysis, we concluded that the sixth was affected by general pressure. As the aphasia was transitory, it seemed that it would hardly do to locate the tumor at the centre of speech, especially in the absence of facial paralysis. We did have one fixed and continuous symptom, namely, loss of vision affecting the left half of the retina. This might tend to show pressure on the optic tract somewhere, but might also show a lesion of the occipital region or of the fibres passing from the occipital region. What made us think it was near the cortex in this region was the fact that the patient often saw red spots. We concluded that the angular gyrus was affected directly, perhaps also the occipital lobe. Large doses of iodide were first used, with no effect. Five weeks later Dr. Richardson operated. We found the tumor was too deep and large for removal. It is a more or less lobulated mass starting deep down, probably from the fovea centralis. Its seat was practically where we located it. It had pressed the tissues forward so that the fissure of Sylvius is quite vertical instead of horizontal. The posterior part of the temporal region was affected, also the angular gyrus. The occipital region is separated from the temporal by the tumor, which extends nearly to the mesial surface of the brain, cutting off the fibres radiating to the occipital lobe. The patient lived two months, with temporary relief of pressure symptoms including the sixth nerve paralysis.

DR. RICHARDSON: There was nothing unusual in the operation. When the bone had been removed no pulsation could be detected. The dura mater was freely incised and turned back. The brain in appearance was not normal, but there was no evidence of the distinctly outlined tumor that can be seen now. With rongeur forceps I extended the cut in the skull, and enlarged the opening in the dura mater. The brain was slightly discolored, differing but little from the normal. The brain substance at this point was soft. I explored it some distance with the knife, but no well defined tumor could be found. The tumor, as you see it now, did not show at any time. The process of hardening has brought it out. I took away a small portion of the cortex, in which Dr. Whitney found nothing special at the time. More careful examination of the hardened specimen showed that it was blended with the rest of the brain and that it would have been impossible to distinguish, isolate or remove it. I recall one or two cases of extensive hernia cerebri accompanied by sloughing of a considerable portion of the cortex, and death. Nothing could have prevented it. The operation in this case, I think, was justifiable, though the prognosis was not encouraging on account of the extensive nature and situation of the lesion. If the growth had been a fibroma or any well-encapsulated tumor of a consistence distinctly perceptible, I think I should have attempted to remove it. Giving up the operation at the time I did was conservative, and certainly wise in the light of the subsequent history.

DURING the past season there were twenty-six fatal accidents in foot-ball matches in England.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, JULY 27, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

MEDICAL EXHIBITS AT THE WORLD'S FAIR.

AMONG the acres of exhibits at Chicago a casual visitor might easily get the impression that medicine had been neglected. But if everything connected with the profession of medicine were in one place, there would be more than most physicians would care to examine. Most medical men who visit the fair are on a vacation, and do not expect to do more than glance at medical exhibits. The ones which require time to study are often deserted or are being examined by non-medical visitors who are tired of walking through miles of buildings, and who hope to find some exciting pictures or specimens. A physician could well spend several days among the material which is connected with medicine. The collections are scattered, and many of them in out-of-the-way places; but, as a rule, they are carefully arranged, and represent a large amount of work and study.

The Marine-Hospital Service has an exhibit in the Government Building, which is well arranged and contains among other things connected with the service, a bacteriological laboratory in working order. The Medical Department of the United States Army have a small model hospital building between the Government and the Liberal Arts Building. Here there is a drug-room, a hospital bed, a collection from the Army Museum; and on the second floor a clinical laboratory. This building, on account of its position, is generally crowded.

In the gallery of the Liberal Arts Building will be found the exhibits connected with medical education. The most complete of this series is that of the German universities, to which entrance may be obtained by application. The medical departments of Harvard, Michigan, Pennsylvania and Columbia are on the south end of the gallery in the exhibits of the different universities. In the north and long west galleries are many collections of instruments, surgical, optical

and psychological; and many more of these being the exhibits of individual firms, are scattered among the sections or buildings of different countries, and are not well arranged for inspection.

Many exhibits which were originally intended to be in the Liberal Arts Building, and which should have been near the others, are in the Anthropological Building, at the extreme southeast corner of the grounds. This building contains a heterogeneous mass of material, which has not yet been entirely arranged. It is out of the way of most visitors, and consequently does not receive the attention which it deserves. In the southern part of the floor the departments of Sanitation and Hygiene, and of Charities and Corrections are situated. Comparatively few States have contributed anything to these collections; and those which have, have done so in different ways, so that the interest lies in the individual exhibits, and not in comparisons. The State of Massachusetts contributes a large fraction of the whole exhibit. Especially to be noticed is the exhibit of the Massachusetts State Board of Health, a more detailed description of which will be published in an early issue. The number of hospitals represented is very small; the Boston City Hospital and the Johns Hopkins Hospital have carefully-prepared and interesting exhibits. Several insane hospitals, penal and charitable institutions are shown by models or diagrams, and by collections of articles manufactured in them. For a student of public institutions many charts, books and pamphlets are obtainable by application.

A visitor is surprised at the frequency with which the ambulance service of the grounds is used. This service is well organized, and is connected with a system of hospital sub-stations, the headquarters and hospital of which are in the Service Building, just north of the Transportation Building. The thorough equipment of this hospital was shown during the recent fire in the Cold-Storage Building, when a large number of accidents brought in together caused no confusion, and found no lack of medical assistance or nursing.

Exhibitions connected with hospital management and nursing and the preparation of drugs are also found scattered through the State Buildings, the Woman's Building, and in special small buildings. Among these is the Children's Building, in which is a gymnasium and a repository for infants, both in active operation. It is reported that several children, left until called for, have not been claimed, and that the fair has a large stock of these deserted young ones on its hands.

For the student of anatomy, or of art, the fair offers wonderful opportunities for the study of the female form. Statues everywhere and paintings, embroidery and decorative work of all kinds represent the female breast in every variety of size, shape, and material. The male figure is not neglected, and the only object which appears to be prohibited is the classical fig-leaf.

By a wise rule, exhibitions and advertisements of quack medicines have been almost entirely excluded, so that it takes one by surprise to find the advertisement of a sure cure for piles unroll itself on the toilet-paper in the closets. This is one of very few such nuisances; and the dignity of the fair is much increased by the prohibition.

THE THERAPEUTIC VALUE OF ALCOHOL IN PNEUMONIA.

At the Société de Thérapeutique, session of May 24, 1893, the subject of the therapeutic value of alcohol in pneumonia was again discussed. While the necessity of alcohol in the asthenic forms was admitted by all, the general sentiment of the authorities present was in favor of giving alcohol, as such, in its purity, sufficiently diluted. The old notion that old wines, whiskeys, etc., were to be preferred because of the "mellowing" properties conferred by age was condemned as a delusion. Such liquors were declared to be much more irritant to the stomach and less certain in their general supporting effects than pure ethyl alcohol, deprived of aroma.

One eminent speaker commended the alcohol of rice, as being exceptionally free from fusel oil and other impurities.

We are told that the best French cognac is, "with few exceptions," "nothing but the alcohol of beets, of poor molasses, changed and colored by the fabricator by the addition of infusion of tea and various essences which give it bouquet." Such brandies are almost certain to contain methyl alcohol in quantity — certain, when freely administered, to do harm to the patient.

M. Huchard, who is an enthusiastic advocate of the employment of digitalis in the pneumonia of influenza, thinks alcohol the remedy *par excellence* of pneumonia by reason of its "dynamogenous action." There was much speculation as to how alcohol does good. M. Bovet declared somewhat vaguely that "by its dynamogenous action it supports the patient: by its reducing action, it modifies the elements of the blood, which rendered more fluid, undergoes an osmotic acceleration which expresses itself by the progressive decongestion of the pulmonary parenchyma." He also thought that "by its calorigenous reaction, it develops a considerable number of calories which cannot but have an influence on the evolution of the infectious elements, by this fact, impeded in their toxic action, and possibly destroyed, "What tends to prove this," he says, "is that after the absorption of the alcohol, we find in the extractive matters of pneumonia patients an abnormal proportion of waste matters of the creatinic series, which are known to be endowed with a remarkable toxicity."

But apart from such speculations, the best proof of the value of alcohol in pneumonia was affirmed to be clinical experience.

The combination of pure ethyl alcohol with digitalis constitutes, in the estimation of Huchard, the ideal treatment of pneumonia, when any active treatment is needed. He gives the digitalis in the form of its active

principle, the crystallized digitalin, in the daily dose of one millegram by mouth.

It is a little singular that no allusion was made at this meeting to the therapeutic efficacy of strychnia in acute croupous pneumonia, a drug which is coming more and more into favor generally as a cardiac tonic in this disease.

MEDICAL NOTES.

THE PETTENKOFER FESTIVAL. — The fiftieth anniversary of Pettenkofer's doctorate was celebrated in Munich, July 1st. The official festival began at eleven o'clock in the morning in the great hall of the "Rathhaus," which was decorated for the occasion. Pettenkofer was first invested with the insignia of the orders bestowed by the Emperor, the Prince-regent of Bavaria and the King of Servia. A renewed medical diploma was given him by the Munich Medical Faculty, after which a congratulatory address was read from the Imperial Sanitary Commission. The greatest honor now followed in the bestowal by the Burgomasters of the "Gold Bürgers medal." This is the first time that this honor has been given to a person already holding an honorary citizenship, as Pettenkofer does. After this came a long list of addresses from the various schools of Munich, from the universities of Berlin, Erlangen, Freiburg, Göttingen, Halle-Wittenberg, Leipzig, Prague, Vienna and Würzburg; from the medical schools of Amsterdam, Basel, Breslau, Edinburg, Giessen, Graz, Greifswalde, Heidelberg, Kasan, Kiew, Marburg, Rostak, Strassburg, St. Petersburg. Deputations from all the scientific societies were then introduced, who offered congratulatory addresses or honorary membership. At the close of these speeches Pettenkofer's present pupils presented him with a memorial volume or *Fest-band*. In the evening a banquet was served in the hall, which was filled to overflowing; the rejoicing and speaking lasted till midnight.

OFFICIAL DELEGATES TO THE PAN-AMERICAN MEDICAL CONGRESS. — In response to the invitation of the President of the United States, nearly all of the foreign governments have appointed official delegates to the Pan-American Medical Congress. The larger cities of the Latin-American countries have appointed delegates to the sections on Hygiene, Climatology and Demography, and on Marine Hygiene and Quarantine. The United States Government will be represented by six delegates, and the governors of several States have so far named seventy-six delegates.

A BEQUEST TO A PHILADELPHIA HOSPITAL. — The German Hospital of Philadelphia receives a gift of one hundred thousand dollars by the will of the late A. J. Drexel.

AUSTRALIAN HOSPITALS AND THE FINANCIAL CRISIS. — A late and serious effect of the financial distress in Australia is just coming to notice. A correspondent writes to the *British Medical Journal* that the hospitals are in very straitened circumstances since they are largely dependent upon private contributions for their support. The Government grant, which for years has been very inadequate, is in danger of being reduced still more. Some of the hospitals have been obliged to reduce the number of patients admitted, in face of the fact that owing to non-employment more persons than usual are looking to the hospitals for medical care.

DERMOID CYST OF THE LUNG. — A case is reported from Vienna, of a dermoid cyst of the lung. The tumor had its origin in the mediastinum, and after involving the lung ruptured into one of the bronchi, the hairs being coughed up in the expectoration.

NEW YORK.

THE CROTON WATER-SUPPLY. — It seems that the health authorities were rather unfortunate in proclaiming the unusual purity of the Croton Water-Supply. Within the past two weeks the water has become decidedly offensive both in odor and taste, and the latest analyses show an uncomfortably large proportion of albuminoid ammonia, as well as a slight increase in nitrates. In view of the many complaints made, Chief Engineer Birdsall, in compliance with a request from the Commissioner of Public Works, made a report, dated July 12th, in which he says: "During the month of May the long-continued freshets in the Croton water-shed thoroughly impregnated all the water in the streams, reservoirs and distributing mains with suspended matter. The usual remedy of blowing out the water-mains was in course of application, when the dry and warm weather of the latter part of June so increased the temperature in the streets and reservoirs that nature began the usual process of purification by fermentation. This process of natural fermentation usually occupies a period of six weeks, and while it is in progress it gives a muddy appearance and bad taste and odor to the water. Since June 14th it has become necessary to draw 120,000,000 gallons of water *per diem* from the storage reservoir to supply the 163,000,000 gallons daily distributed and used in the city. The stored water always has a musty taste and odor, but its passage through the streams, reservoirs and aqueducts generally purifies and deodorizes the water. At the present time, however, the water running in the streams is undergoing a purifying process, and this, combined with the use of stored water, increases the bad taste and odor. . . . A very heavy and continued rainfall in the Croton basin would remove all of the offensive taste and odor in a week, but as there is no prospect of such rainfall, the improvement in the quality of the water will only be gradual from now on, and the rate of that improvement will also depend upon the conditions of temperature and weather."

NEW YORK BOARD OF HEALTH. — At a meeting of the Board of Health held July 19th, a report was read from Dr. H. H. Doty, Chief Inspector for Contagious Diseases in which he states that he is convinced that a large number of down-town lodging-houses are infected with the germs of typhus fever, and that a

large percentage of the patients who have recently been removed to Riverside Hospital on North Brother Island have contracted the disease in these infected lodging-houses; moreover, that this condition of affairs is the result of an accumulation of the poison, covering a long period of time. The comparatively few cases occurring at present as the result of this infection, he thinks, is due to the increased amount of fresh air which is admitted to the premises during the warm weather and the fact that at this season there are comparatively few lodgers, particularly permanent ones. He therefore recommends, as a means of eliminating this source of contagion that all lodging-houses in the city which appear on the list of typhus lodging-houses on record in the bureau of contagious diseases be properly disinfected by their proprietors, under the supervision of inspectors detailed from the Division of Disinfection and Fumigation. At the conclusion of the reading of the report the Board ordered that the disinfection recommended should be made. At the same meeting President Wilson reported that the results which Health Commissioner Edson had met with in some recent experiments with the Wolf electrical system for the purification of water had been very successful, and that it was probable that the department of public works would have a purifying plant put up, the cost of which would not be more than $5,000.

Immigration Supervision. — In view of the possible advent of cholera the United States Marine-Hospital Service has prepared a system of medical supervision of immigrants until they arrive at their proposed destinations. On each immigrant train that leaves the city there will be a medical representative of the Marine-Hospital Service whose duty it will be to report to Dr. Bellbache, of the Ellis Island immigrant depot, any cases of sickness occurring during the journey. In the event of cholera developing in transit, the patient will be isolated, and the train quarantined.

Pasteur Institute. — Dr. Gibier reports that during the year ending July 1st there have been 104 persons under treatment at the Pasteur Institute, of which he is director, and that among these no death has occurred. Forty of the cases were from New Jersey, a much larger percentage than any other State. The cases are divided into three classes. The first combines those patients who were bitten by animals in which the existence of rabies was proved by means of experiment or by the death of some other person or animal bitten by them. The second is made up of those who had been bitten by animals recognized as rabid by clinical examination, and the third, of those in which the presence of rabies in the animals by which they were bitten could only be suspected, as the animals had disappeared or had been instantly killed, and their bodies thrown away. The first division included forty-seven cases. In commenting on the extraordinarily large number of cases in New Jersey Dr. Gibier states that this is probably due to the fact that there are a great many kennels in that State. He believes, however, that reports of the prevalence of hydrophobia in any particular district are generally more or less exaggerated, and that one reason for this is that it is not an easy matter for the average man to discriminate between rabies and the numerous forms of epilepsy.

Fracture of the Cervical Spine. — There is at present in the Harlem Hospital a young man, twenty-two years of age, who is living with a broken neck and whose prospects for continuing to live are excellent. He was struck by the arm of a windlass, the blow rendering him insensible for a time, and an examination proved that there was a fracture of the fifth cervical vertebræ. Just now the head is supported by a plaster-of-Paris dressing, but before leaving the hospital he will be provided with a permanent apparatus for the purpose.

An Unusual Case of Triplets. — The newspapers report a case of triplets in Nyack on the Hudson which seems to be one of the most remarkable on record. There were two males and one female, and their aggregate weight was fifteen pounds. The two boys were bound together by a band almost precisely like that in the case of the Siamese twins, while the girl was joined to one of the boys by a band passing from the hip of the one to the hip of the other. The children survived for seven hours after birth. When the death of the girl and one boy had occurred an effort was made to save the life of the third child by cutting the ligature binding him to his brother, but it proved ineffectual.

Miscellany.

THE BACTERIOLOGY OF HUMAN MILK.

Since Escherich's report in 1885, it has been believed very generally that the milk of a healthy woman was sterile. His experiments went to prove that only in cases of puerperal fever, did a woman's milk contain bacteria. This view is refuted by Ringel,[1] who has recently concluded a series of experiments which give quite opposite results. He shows that many of Escherich's figures argue against that writer's own theory, as do the later experiments of Cohn and Neumann and Palleske.

Ringel's experiments were carried on in the most guarded manner, and all possible sources of error carefully avoided. The breast and nipple were most thoroughly cleansed with alcohol, 1 to 1000 corrosive solution and ether. Any milk which might have been left in the tubes from a previous milking was drawn off, and the nipple again cleansed. The milk was then drawn into sterile vessels and subjected for twenty minutes to a temperature of 160°.

From 0.25 to 0.5 cubic centimetres of this milk was then spread on nutrient gelatin, and a few drops added to some bouillon and agar.

Milk was taken in this manner from twelve healthy women and from thirteen ill with puerperal fever.

The results were as follows: In three cases the

[1] Münchener Med. Woch., 1893, No. 27.

milk was found sterile; in seventeen there was found the staphylococcus pyogenes albus; in two the staphylococcus pyogenes aureus; once both forms; and in two cases the staphylococcus pyogenes albus and the streptococcus pyogenes. The staphylococci were found, without the streptococci, in eleven healthy and in nine of the febrile cases. The streptococci were found in two cases, one of mild puerperal sepsis and one of phlebitis.

The question of entrance seemed to be answered best by the assumption that the cocci entered from without during pregnancy, and finding a favorable nutrition, developed in excess of the other bacteria which might be supposed to have entered from the air with them.

His conclusions — that "in human milk there are almost always present staphylococci, usually the staphylococcus albus, rarely the aureus; that these have their entrance from without, and produce no particular pathological symptoms in the breast; that besides these forms, streptococci may rarely be found in cases of puerperal fever" — have been to a great extent borne out by Honigmann, in an independent series of experiments.

THE HABITUAL USE OF OPIUM.

IN view of the increasing prevalence of the opium habit in this country, the experience of physicians in India and China is worthy of some attention. The reports recently made to the *Asiatic Quarterly Review* and the *Times of India* are singularly alike in their conclusions.

The smoking of opium is almost universal; and in the observation of over a thousand patients in Johore, Dr. Nightingale found an exceedingly small number who could in any way be considered harmed by the use of the drug. The mild stimulation of smoking was rarely carried to an excess; and when so done, had not the bellicose effects of alcohol. Dr. Lisboa's conclusions were the same: that the habit was much to be preferred to an alcoholic one; that the craving did not grow, nor was the amount used increased as in the case of spirits.

Such, certainly, is not the experience of observers in this country; and it is an interesting question whether the difference is due to the use of the various preparations of the drug in concentrated form, or to a more highly organized nervous system in the Aryan races.

DISLOCATION OF THE SHOULDER.

THOMAS publishes[1] an analysis of thirty cases of dislocated shoulder treated chiefly by means of Kocher's method of manipulation. Twenty-four cases were easily reduced on the first manipulation on the day of the accident. The time occupied varied from fifteen seconds to six minutes; and the reduction was as successful in muscular subjects as in non-muscular patients. Any difficulty in the quick reduction was usually due to a want of steady longitudinal traction or to an irregular tear in the capsule.

The six cases which were unsuccessful at first are especially interesting. No. 1 was of eight weeks' standing; various methods under chloroform narcosis failed, and the patient was discharged with a useful, movable false joint. Nos. 2 and 3 were recent dislocations in spare, non-muscular men; manipulation repeatedly failed, and the heel method was at once successful. In No. 4, manipulation, heel method and circumduction failed; under chloroform narcosis reduction by manipulation was effected in thirty seconds. In No. 5, after the patient was anæsthetized, manipulation again failed, but the heel method was successful. In No. 6, repeated manipulation failed; traction with the patient's arm round the operator's waist was successful.

Several cases were reduced in the first stage, that of outward rotation; the majority, however, yielded in the second movement, of the arm inwards to the chest, while rotation is maintained.

[1] British Medical Journal, July 8, 1893.

AN OPERATION FOR CLEFT PALATE.

MR. LANE, of Guy's Hospital, has operated upon a case of cleft palate, in which the usual method of closure was impossible, by an ingenious device for obtaining the flaps. The upper lip, the hard and soft palates, were cleft from before backwards. On one side the palate united obliquely with the lower end of the vomer; on the other the alveolus was directly continuous with the inferior nasal meatus.

According to the *Medical Press*, Mr. Lane's procedure was as follows: He removed the mucous membrane from the margin of the hard palate on the one side, and on the other he stripped the mucous membrane from the inferior turbinated bone and from the inferior meatus, and so formed a good-sized flap of mucous tissue and periosteum whose base was continuous with the mucous membrane lining the inner aspect of the alveolus which formed one boundary of the cleft. This flap was then made to cover in the cleft, being connected by a continuous suture with the opposing freshened edge. No attempt was made to close the cleft in the soft palate: it being thought best to wait the development of the hard palate, as the child was only two years old.

INDIGESTION SIMULATING CEREBRAL LESIONS.

CORTIAL reports[1] two cases of acute indigestion which clinically had the appearance of cerebral hæmorrhage.

The first case was that of an ordnance officer, twenty-three years old, of good history and habits. He fell unconscious in the street; and when seen an hour later was insensible, with the eyes rolled up, pupils contracted, a full, regular, fairly rapid pulse and moderate rise of temperature. The extremities were in constant motion, as was the head; but there were no convulsions of an eclamptic nature, nor any discoverable paralysis. The hands were carried to the head as if in pain. Alcoholic intoxication and insolation were excluded by the history; and the diagnosis rested between cerebral hæmorrhage (rare at this age) and indigestion. The stomach was somewhat distended, and pressure over the epigastrium called forth signs of pain from the patient, though still unconscious. On

[1] Archives de Med. Militaires, 1893, No. 7.

this a diagnosis of indigestion was made, and the patient treated accordingly. The bowels were moved, and emesis followed in about two hours, continuing until noon the next day, when the man slowly recovered consciousness, and the case followed the usual course of an acute gastritis.

The second patient, a man twenty-six years old, of good history but for occasional attacks of migraine, was heard to groan in the night, and was found unconscious, with deep stertorous respiration, contracted pupils, and constant movement of the extremities, especially on the left side. As in the previous case, pressure over the stomach caused pain, and greatly increased the movement of the limbs. Similar treatment was instituted; and after copious emesis of undigested food, the patient recovered consciousness, and in a few days was discharged well.

Such attacks, common enough in young children, are not often seen in adults. An important diagnostic point is the tenderness to epigastric pressure. Cortial is in favor of venesection in such cases, having bled both of the patients just reported. That and emptying the stomach is usually sufficient.

THERAPEUTIC NOTES.

PHOSPHORUS IN OSTEOMALACIA.[1] — Sternberg reports four cases of osteomalacia treated with phosphorus; three of which were cured and one greatly relieved. The first was a woman who had been for nearly a year confined to bed owing to pelvic involvement in the disease, was so far cured that during a subsequent pregnancy she was able to go about her work. When confined, there was such firm union of the affected pelvis that a Cæsarean section was necessary, from which she unfortunately died. Two other cases of puerperal osteomalacia made rapid and marked improvement. A case of senile softening in a woman sixty-nine years old, which had gone on to affection of the ribs and kyphosis, made a complete recovery. The phosphorus is given in the following formula:

℞ Phosphori . . . . . 0.05 gm.
Olei morrhuæ . . . . . 50.00 gms. M.
Sig. A teaspoonful daily.

In all his cases Sternberg found that the drug was well borne, and he attributes the negative results of other writers to their having given too small doses.

CREOLIN IN SUMMER DIARRHŒA OF CHILDREN. — In the antiseptic treatment of cholera infantum and summer diarrhœa, Norin reports successful use of rectal injections of warm creolin solutions. He lays the child on its abdomen and flushes the bowel with an alkaline solution, and then injects a solution of creolin of the strength of one-half to one drachm to the pint of boiled water. This is repeated several times in the twenty-four hours, if necessary; but in most cases the vomiting stops, and the diarrhœa is much lessened.[2]

ADMINISTRATION OF CALOMEL. — Chapman[3] urges the administration of calomel in small, frequently-repeated doses (gr. one-tenth to one-sixth every fifteen to thirty minutes) in cases of obstinate vomiting due to gastric irritation. Under this administration two grains have frequently proved enough to allay the vomiting and pain and to do away with the fetor of breath in a very short time. In cases of cardiac dropsy, also, he finds frequent small doses better than single large ones.

SALOL IN TUBERCULOSIS. — Grossi recommends the use of salol in early phthisis in the following manner:

℞ Ol. amygd. dulc. (sterilized) . . . . . 60.0 gm.
Salol . . . . . 10.0 gm. M.

Of this solution five cubic centimetres are given subcutaneously, at first once a day, gradually increased to two or three times each day. He finds that under this treatment the sweating and cough are much diminished, and a gain is made in the general strength of the patient. There is some local induration around the seat of puncture.

FACIAL ERYSIPELAS. — Petrini's treatment of facial erysipelas which, he claims, does away with the need of isolation, consists in painting the affected area with a solution of corrosive sublimate in collodion, one grain to the ounce. After a free purge by calomel and scammony, the patient is given the following:

℞ Quiniæ sulphatis . . . . . ʒ ss.
Iodoform . . . . . gr. vii.
Syr. tolutani } . . . . . q. s.
Ext. gentian }
M. et div. in pil. no. xx.
Sig. Two pills every two hours.

[1] Centralbl. f. gesamt. Therapie, 1893, No. 7.
[2] Northwestern Lancet, vol. xiii, No. 13.
[3] Lancet, vol. ii, No. 1, 1893.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 15, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Whooping Cough.	Diphtheria and croup.
New York	1,891,306	1096	681	36.90	7.20	29.88	.90	3.23
Chicago	1,438,000	—	—	—	—	—	—	—
Philadelphia	1,115,562	632	356	34.56	8.16	28.80	1.44	3.24
Brooklyn	978,394	583	374	39.61	7.48	34.17	1.19	2.04
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	195	72	13.17	14.28	7.65	.51	3.57
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	137	75	36.50	10.95	29.20	2.19	—
Cincinnati	305,000	143	66	21.00	14.70	18.20	—	.70
Cleveland	290,000	99	55	31.31	9.09	26.26	—	3.03
Pittsburg	265,700	159	104	59.85	5.67	38.43	3.78	2.52
Milwaukee	250,000	79	34	16.38	6.30	5.04	—	6.30
Nashville	87,754	29	13	20.70	13.80	6.90	10.35	3.45
Charleston	65,165	—	—	—	—	—	—	—
Portland	40,000	10	0	10.00	—	—	—	—
Worcester	96,217	33	19	30.30	3.03	21.21	—	3.03
Fall River	87,111	50	35	54.00	6.00	54.00	—	—
Lowell	87,191	49	32	42.84	4.08	42.84	—	—
Cambridge	77,100	25	12	36.00	8.00	24.00	4.00	4.00
Lynn	62,656	12	6	8.33	8.33	8.33	—	—
Springfield	48,684	17	5	23.52	23.52	11.76	—	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	26	17	42.35	7.70	30.80	3.85	—
Holyoke	41,278	—	—	—	—	—	—	—
Salem	32,233	15	7	26.66	6.66	13.33	6.66	6.66
Brockton	32,140	—	—	—	—	—	—	—
Haverhill	31,396	3	0	—	33.33	—	—	—
Chelsea	30,364	7	2	14.28	28.56	—	—	—
Malden	29,394	4	0	—	50.00	—	—	—
Newton	27,556	—	—	—	—	—	—	—
Fitchburg	27,146	5	4	20.00	20.00	20.00	—	—
Taunton	26,972	9	1	—	11.11	—	—	—
Gloucester	26,688	7	3	—	—	—	—	—
Waltham	22,058	5	3	40.00	—	20.00	—	20.00
Quincy	19,642	7	2	28.56	—	14.28	—	—
Pittsfield	18,802	3	1	—	—	—	—	—
Everett	16,585	3	0	33.33	33.33	—	—	—
Northampton	16,331	4	0	25.00	—	—	—	—
Newburyport	14,073	3	1	—	—	—	—	—
Amesbury	10,920	0	0	—	—	—	—	—

Deaths reported 3,469: under five years of age 1,983; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fevers), 1,211, diarrhœal diseases 962, consumption 289, acute lung diseases 193, diphtheria 91, whooping-cough 39, typhoid fever 37, scarlet fever 29, measles 23, cerebro-spinal meningitis 15, malarial fever 11, erysipelas 4.

From typhoid fever Philadelphia 8, Pittsburgh 7, New York and Brooklyn 5 each, Washington 4, Cincinnati 3, Boston 2, Cleveland, New Bedford and Northampton 1 each. From scarlet fever New York and Pittsburgh 7 each, Philadelphia 5, Milwaukee 4, Boston 2, Brooklyn, Cambridge, Springfield and New Bedford 1 each. From measles Pittsburgh 9, New York 6, Philadelphia 2, Brooklyn, Washington, Cleveland, Portland, Worcester and Springfield 1 each. From cerebro-spinal meningitis New York 7, Brooklyn and Washington 2 each, Philadelphia, Worcester, Chelsea and Quincy 1 each. From malarial fever New York 5, Brooklyn 4, Philadelphia and Cleveland 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,322,429, for the week ending July 8th, the death-rate was 23.8. Deaths reported 4,702; acute diseases of the respiratory organs (London) 235, diarrhœa 816, measles 112, whooping-cough 85, diphtheria 76, scarlet fever 54, fever 41, small-pox (London 9, Birmingham 2, West Ham and Bradford 1 each) 13.

The death-rates ranged from 11.8 in Oldham to 42.1 in Preston; Birmingham 26.2, Bradford 24.9, Gateshead 20.1, Hull 20.7, Leeds 21.6, Leicester 32.1, Liverpool 34.9, London 22.4, Manchester 32.2, Newcastle-on-Tyne 25.7, Norwich 13.5, Portsmouth 19.0, Salford 26.1.

METEOROLOGICAL RECORD,

For the week ending July 15, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S... 9	29.80	77	84	70	55	71	63	N.W.	N.E.	12	4	C.	F.	
M..10	30.04	68	75	60	57	46	52	N.	N.W.	9	7	C.	C.	
T..11	30.14	70	81	58	60	56	58	W.	S.W.	10	8	C.	C.	
W.12	30.04	73	82	64	54	74	64	N.W.	W.	8	4	O	O.	0.03
T..13	29.87	72	81	62	61	56	7*	N.W.	E.	8	12	F.	F.	0.01
F..14	29.97	64	70	58	54	56	55	N.E.	S.E.	11	8	C.	F.	
S..15	21.91	70	80	60	57	52	54	S.W.	S.W.	16	21	F.	O.	
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 15, 1893, TO JULY 21, 1893.

FIRST-LIEUT. JAMES D. GLENNAN, assistant surgeon, ordered to report to the president of the examining board, for examination for promotion.

MAJOR PETER J. A. CLEARY, surgeon, granted leave of absence for four months, on surgeon's certificate of disability.

FIRST-LIEUT. A. E. BRADLEY, assistant surgeon, ordered to report to LIEUT.-COL. DALLAS BACHE, deputy surgeon-general, president of examining board at Omaha, Neb., for examination for promotion to grade of Captain.

FIRST-LIEUT. J. T. CLARKE, assistant surgeon, will, on the abandonment of Camp Poplar River, Montana, proceed to Fort Sully, South Dakota, for temporary duty, and on return FIRST-LIEUT. BRADLEY, proceed to and take station at Fort Omaha, Nebraska.

Leave of absence for one month, to take effect between the 15th and 30th, is granted MAJOR CALVIN DEWITT, surgeon, U. S. A. Par. 2, S. O. 78, Hdqrs. Dept. of Texas, July 11, 1893.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JULY 22, 1893.

T. B. BAILEY, passed assistant surgeon, from Philadelphia Hospital and to the U. S. S. "Machias."

W. M. JONES, medical inspector, from Navy Yard, League Island, and wait orders.

G. H. COOK, medical inspector, to the Navy Yard, League Island.

S. H. DICKSON, surgeon, from Marine Barracks and to the "Dolphin," temporarily.

P. M. RIXEY, surgeon, from the "Dolphin" and granted temporary leave.

J. D. GATEWOOD, passed assistant surgeon, temporary duty at Marine Barracks.

A. R. WENTWORTH, passed assistant surgeon, from the "Atlanta" and granted leave.

W. G. FARWELL, surgeon, to temporary duty on the "Franklin."

C. T. HIBBITT, surgeon, from the "Franklin" and to the "Detroit."

C. W. BROWNELL, assistant surgeon, ordered to Receiving-ship "St. Louis."

APPOINTMENTS.

MALCOM STORER, M.D., has been appointed district physician to the Boston Dispensary.

BENJAMIN TENNEY, M.D., has been appointed district physician to the Boston Dispensary.

PAN-AMERICAN MEDICAL CONGRESS.

SECTION ON MATERIA MEDICA AND PHARMACOLOGY.

A Section on Materia Medica and Pharmacology has been organized under the Executive Presidency of Prof. Joseph P. Remington, of Longport, N. J., with Prof. F. G. Ryan, 3739 Brown Street, Philadelphia, as English-speaking Secretary. Delegates have been invited from all the pharmaceutical societies and colleges in all the Americas. Those contemplating attendance are invited to prepare papers on pharmaceutical topics. Titles should be sent at once to Professor Ryan, Secretary.

CORRECTION.

On page 73 of the JOURNAL of July 20th, the four paragraphs beginning "Mr. Edwin Chadwick" belong under the head of "Vagaries of Sanitary Science," and should be at the bottom of the column.

RECENT DEATHS.

DAVID HARLAN, M.D., died at Churchville, Md., July 12th, aged eighty-four years. He was at one time a member of the Board of Visitors to the Naval Academy at Annapolis, and a Medical Director in the United States Navy.

ANDREW FRANCIS SHEA, M.D., M.M.S.S., died in Lawrence, July 25th, aged thirty-five years.

BOOKS AND PAMPHLETS RECEIVED.

The Colorado School of Medicine, Medical Department of the University of Colorado, Boulder. 1893-94.

The St. Louis Medical College, Fifty-second Annual Announcement, 1893-94, and Catalogue for 1892-93.

Thirteenth Annual Announcement of the University Medical ollege of Kansas City, Mo. 1893.

Training-Schools for Nurses in Small Cities. By A. Worcester, A.M., M.D. 1893.

Cholera Infantum. By E. Mienert, M.D., Dresden. Reprint. 1893.

Traumatic Lesions of the Spinal Cord. Importance of Arterio-Sclerosis in the Etiology of Posterior Spinal Sclerosis. By George J. Preston, M.D., of Baltimore. Reprints. 1893.

Some Further Remarks on Elastic Constriction as a Hæmostatic Measure, with a Letter from Professor Von Esmarch. By N. Senn, M.D., Ph.D., Chicago, Ill. Reprint. 1893.

A Medical Hand-book for the Use of Practitioners and Students. By R. S. Aitchison, M.B., C.M., F.R.C.P.E. Philadelphia: J. B. Lippincott. 1893.

The Stœchiological Cure of Consumption and Diseases of the Respiratory Organs; from Letters to a Patient. By John Francis Churchill, M.D. 1893.

Thirty-fourth Annual Report of the Department for the Inspection of Milk and Vinegar, from February 1, 1892, to January 31, 1893. Boston. 1893.

A Practical System of Studying the German Language. For Physicians and Medical Students. Part I. By Albert Pick, M.D. Boston, Mass. 1893.

Clinical Notes on Chancre of the Tonsil, With Analysis of Fifteen Cases. By L. Duncan Bulkley, A.M., M.D., New York. Reprint. 1893.

Problems of Physical Education. By George Wells Fitz, M.D., Instructor in Physiology and Hygiene, Harvard University. Reprint.

Lectures.

LECTURES ON SURGERY.

BY DAVID W. CHEEVER, M.D.,
Professor of Surgery in Harvard University.

XI.

SPECIAL FRACTURES.

Fractures of the Pelvis. — To go over the anatomy of the pelvis for a moment; the ilium, ischium and pubes, being three separate bones, afterwards consolidate at the acetabulum. The acetabulum is a little Y-shaped piece in the fœtal state, which is an epiphysis. The three bones unite around this little piece. The acetabulum is a weak point in the bone; and up to the period of adult life, if a fracture of the pelvis takes place, it is very apt to run into the acetabulum, in the line of these old junctions. Setting that aside, there are quite a number of epiphyses which are liable to be broken off. The spine, the lip, the crest, the inferior spine, the tuberosity, — those are points likely to give way in the young subject, unless the fracture takes place through the acetabulum itself.

The fractures of the pelvis in the strong person occur usually in consequence of crushing injuries. Something must seize the pelvis and compress it, either laterally or antero-posteriorly, in order to break it, for it is usually quite strong. Persons occasionally get caught between moving cars, or between the wheel and body of a cart; or occasionally when a person is at work trying to bring a vessel into a wharf; or at ferry-landings, where persons jump off in a hurry, and get caught between the boat and the dock. The next most common cause, I think, is the fall of banks of earth. This crushes and compresses the pelvis.

Fracture of the Crest of the Ilium. — The simplest one is the fracture of the crest of the ilium. It gives rise to but few symptoms. The patient feels very sore and lame about the attachments of the muscles of the abdomen, and on examination there is found a displacement inwards of the crest, and mobility. Crepitus can be found. It unites easily. It is apt to unite with displacement inwards. Bandages put on to hold it in place make it worse. The patient should be kept in bed, with sand bags, perhaps, around the pelvis; and be encouraged to lie still without any direct pressure upon the crest of the ilium.

Union takes place in three to four weeks. It always takes place. I think the resulting injury to the patient as regards the use of the part is slight, if anything at all. The danger in all fractures of the pelvis is in injury to the pelvic contents; especially the bladder, and occasionally the rectum. The bladder may be displaced, removed from its delicate cellular attachments, or torn, or ruptured, by a fracture of the pelvis. In the same way the rectum may be wounded; or the delicate spaces around the rectum may be impinged upon by broken bones and effusions of blood, in such a way, as afterwards to lead to a pelvic cellulitis and abscess, if not to absolute peritonitis. The important point, then, about fracture of the pelvis is the condition of the viscera inside; and these are to be investigated carefully both subjectively and objectively.

In investigating fracture of the pelvis we have a much better opportunity to make a complete diagnosis in the female than in the male, because we have by means of a vaginal examination the ability to map out most of the outlines in the adult pelvis, and to seize the parts within, and compress them outside, and see whether crepitus as well as displacement exists. We have this opportunity, in less degree, by a rectal examination, in both sexes. When doubt exists, we should examine by the vagina and rectum in the female, and always by the rectum in the male.

In regard to the condition of the viscera themselves, we can judge about the bladder in two ways: first, by the intensity of the immediate symptoms; and, second, if these do not exist, by the condition of the water that the patient first begins to pass. It is one of those questions we should always ask and have attended to, the first few times the patient passes water after an accident about the pelvis. Where it is absolutely free from blood the first time, there may be blood in the urine the second time. I have seen it occur several times, that the water passed the first time was clear, but the second time it began to be tinged with blood. The patient first passes off the superficial fluid. The leak begins to bleed; then it bleeds enough into the bladder to give blood with the urine on the second passage. So also we await with a good deal of anxiety the first passage from the bowels; whether that will come down free from blood, and demonstrate that the rectum is whole. Of course, in severe cases of crushing of the pelvis, where the parts have been terribly injured, we have immediate symptoms of great collapse. If the bladder is torn, intense and burning pain about the pubes comes on; the patient makes efforts at passing water without success. If the peritoneum has been involved, we have rise of temperature and all the signs of peritonitis.

We have in the vagina and in the rectum invaluable means for diagnosis by making careful explorations.

Fracture of the crest of the ilium requires but little treatment. Other fractures which run through the pelvis require treatment according to location. They all require absolute rest in bed, with the patient on the back, with the knees slightly flexed, in order to relax the mass of long muscles of the leg which take their rise from the pelvis. In addition, it is of extreme importance and comfort that the pelvis should be held together by a firm swathe, which will compress the bones. A swathe is a very awkward affair, and constantly getting out of place; consequently an apparatus made a good deal like bathing-tights is most useful. In order that this may be applied with ease, all the parts must be laced. In that way everything can be drawn firmly together. It never slips out of place. It is constructed with a view of not chafing the patient, or interfering with the action of the bowels. It is made of heavy material, and fitted as one would fit an elastic jersey, or something of that kind, to the limbs. He must lie persistently on the back; and this apparatus must be kept on a long while — two or three months usually, if the fracture runs entirely through the pelvis. If, in addition to this, we are reasonably sure that the fracture has passed through the acetabulum, this treatment alone will not be sufficient; and we must combine with it the ordinary treatment for fracture of the thigh — extension and counter-extension.

The fractures of the pelvis which are the most troublesome are those which pass through the acetabulum

[1] These are unwritten lectures printed from the stenographer's reports. Verbal corrections are made in revision, but no rhetorical changes. They were delivered to the third and fourth classes as part of the regular course.

— troublesome to diagnosticate and treat — and they give the worst prognosis. The acetabulum being broken through somewhere about its epiphyseal lines, we shall have crepitus and the ordinary signs of fracture about the neck of the femur, but no shortening, and not necessarily any eversion of the foot. Marked eversion, with the femur unbroken, indicates a through and through fracture of the pelvis. Seizing the pelvis with both hands, sometimes, and compressing it, we elicit crepitus. Sometimes we get crepitus on examination by the rectum, or the vagina.

This requires a pelvic band, long rest in bed, and the full treatment for broken thigh, for a considerable length of time.

The result which we get will be union, but probably not smooth and comfortable to the patient. Stiffness of the joint, subsequent arthritis, etc., are common sequences of this fracture. There will be a more or less stiff and uncomfortable hip-joint from the fracture.

Fracture of the Sacrum. — Fracture of the sacrum can be pretty easily detected from the outside, for the sacrum is rather superficial. It can occasionally be detected by examination by the rectum.

It is difficult to restore the position of the sacrum when broken. It may be done possibly by violent pressure from within the rectum. Such cases must be treated by very gentle pressure with a pelvic band, and by keeping the patient in bed. Union is pretty sure to take place. The chance of its breaking through where some of the great nerves emerge is possible, with subsequent sciatica.

Fracture of the Coccyx. — Fracture of the coccyx presents no external signs except that the patient cannot sit down without great distress, and complains of a hard or straining passage from the bowels. Fracture of the coccyx can hardly be overlooked, if we examine properly by the rectum. Passing one finger well up into the rectum and having the thumb outside on the coccyx, you have complete control, and can tell whether there is mobility or crepitus. In addition, we often find that the coccyx is abnormally tipped in; and we can push it back into place. Usually it can be pushed back, temporarily at least, into place. It is important to rectify the position, inasmuch as if left, it interferes with the action of the bowels, causes tenesmus, and is apt to produce neuralgic pains. Coccyodynia is apt to result, and sometimes requires operation to relieve it. I have seen one or two cases of fracture of the coccyx do well under the following treatment: clear out the bowels thoroughly; replace the coccyx into position by the finger in the rectum; keep the patient on the side in bed, and do not let him lie on the back; keep the stools perfectly soft, which is best done by daily small doses of castor-oil.

The slight injuries of the coccyx which happen from persons being thrown from a carriage or sleigh, or falling on some sharp substance, the top of a chair for instance, produce a bending of the coccyx without fracture. They strain the ligaments, bruise the parts, lead to subsequent spasm of the little coccygeal muscles, and to a rheumatic condition, or to some sort of an inflammation of the ligaments of the coccyx itself. This is frequently the seat of long-continued neuralgic pain, and is sometimes relieved by dividing the ligaments; sometimes it has to be treated by excising the coccyx itself, which is not a dangerous operation, if properly conducted, although the hole that is left will surprise you by its depth and size, and take some time to heal up. The average results of any operative interference are not very encouraging.

Fractures of the Neck of the Thigh-Bone.— The neck of the thigh-bone differs very much at different ages. In the young subject it is at a very slight angle from the shaft. In youth it becomes a little more oblique; in adult life it is at a greater angle; in old age it is almost transverse; and in addition to that, it is shortened.

As to the anatomical structure of the neck of the femur, the posterior edge has the thinner wall. It is made up of cancellous tissue partially. The thinner wall being on the posterior part, after moderate injuries it is the back wall which breaks first; and if that gives way, then the femur rotates (just as it would upon a hinge) upon the back wall, and the foot turns out. That is the usual history. In complete fracture across, the foot turns out, from the loss of control of the obturator muscles.

The fact of this different structure of the bone, and its different positions in different ages, apparently explains why it is that fractures of the neck of the thigh-bone, which are complete, are very difficult to make unite again after a certain age. Bony union, it is asserted, almost never takes place beyond the age of sixty. I have seen what I supposed to be bony union at the age of fifty-four, or fifty-five. Even when a person has passed fifty, judging by the constitution and the relative age, we may infer whether they will have sufficient vigor to unite the fracture of the neck of the thigh-bone by bone.

Various reasons exist why this should be difficult to do. In the first place, the upper fragment, as you see, is like one-half or two-thirds of a billiard ball, lying in the socket, bathed in the synovial fluid, having no nutrition except that coming from the ligamentum teres. When there is a complete fracture, the neck rides out of the socket; the femur is gradually drawn up out of the socket; the limb is very much shortened; the parts do not come in apposition; and it is difficult to keep them in apposition, indeed, by treatment. Not only does shortening take place, but, in addition to that, the femur drops back by gravitation as the patient lies in bed.

Want of apposition, want of perfect nutrition, and the general feebleness of the parts, are the causes of failure of good bony union in this fracture.

On the other hand, there is another species of fracture of the neck where separation of the fragments does not take place. This is called impacted fracture of the neck of the thigh-bone: and it occurs from the strong bony tissue of the shaft being driven into the neck and head; the posterior wall of the neck, which is the thinner, giving way; and more or less impaction taking place at a greater, or less angle. By that I mean that this may possibly take place, with the foot directly forward, or in the position of moderate or extreme eversion, according as the bone is driven in posteriorly, as you must see.

Impacted fracture of the neck of the thigh-bone takes place at the same age as the complete fracture; and it is much more likely to occur in the middle-aged and old than in the young; just as in the fracture of the anatomical neck of the humerus, it is especially in middle life and advanced age that that occurs. In extreme youth the epiphyses separate; in adult age the bone breaks at the surgical neck.

The force required to make the neck of the thigh-bone crumble or yield, either to impaction or fracture,

is sometimes so slight, in advanced age, that the theory has been advanced, when a person falls and a break is found, that the fall is subsequent to the fracture. Sometimes, probably, this is true; for the violence of the fall is occasionally so slight that you can hardly consider it enough to produce fracture. Old women will sink down on the floor of a softly-carpeted room, perhaps a distance of two or three feet, and be found to have either impacted, or complete fracture of the neck of the thigh-bone. The slightest possible accidents seem to be coincident with this fracture. Whether they are always the cause of them we have no means of knowing; or whether, possibly, the bone may give way first.

Moreover, there is another very deceptive point. It is this: that in these fractures when the patient merely slips down on the ground, as happens sometimes, the patient is not at first rendered so helpless but that he or she can stand, or walk a few steps, after an impacted fracture; but not after complete fracture of the neck of the thigh bone. Instances are known in which patients have ascended two or three steps of a flight of stairs, before giving out.

A great deal of importance has been laid, as to the chances of bony union and good repair, on the fact whether the line of fracture, in a complete fracture of the neck of the thigh-bone, was entirely inside the capsule, outside the capsule or partially inside and partially outside. A fracture outside the capsule of the neck, outside the socket-joint, is as likely to unite by bone as a fracture of the shaft, or of the trochanters themselves. In proportion as we approach a complete intracapsular fracture, we approach a point where non-union is liable to occur; but to diagnosticate the exact running of a fracture partially inside and partially outside the capsule is probably beyond our knowledge. Some authorities pretend to do it. There is an anatomical peculiarity which is well recognized and has been written upon, which rather gives discredit to this assertion. It would be, in the first place, down through the deep tissues of the buttock, extremely difficult to tell exactly where a fracture had gone with reference to the capsule, even if we knew the exact position where the capsule is. We know where it ought to be. It varies. In some joints it is higher; in some it is inserted lower upon the neck; and if you take this doubtful anatomical position of the capsule itself, and the difficulty of detecting a fracture which may run one-fourth of an inch one way or the other, above or below the neck, you must see the difficulty of the diagnosis of partial intracapsular fracture from entire intracapsular fracture. It is quite clear when we get a fracture outside; we can recognize crepitation directly under the trochanter, and other signs; but when it gets in the vicinity of the capsule, to tell whether wholly inside or out, I am inclined to think is beyond the ordinary run of wisdom, or of guessing.

Symptoms of these two classes of injuries. They are sometimes so slight that they are unfortunately overlooked. The patient has a fall the like of which he has had many times before without sustaining the least injury. He becomes incapacitated; sees he or she cannot walk; and the friends, and often the physician, are ready to ascribe it to a contusion, or bruising, or neuralgia of the part, rather than to a fracture. The subsequent symptoms at first are so slight, that this sort of fracture is very liable to be overlooked.

The impacted fracture. The patient has a very slight slip or fall. He gets up and steps a step or two, and he says he cannot go any further. On being examined it is rare that any bruise of the external parts is found. Such patients usually fall with a good deal of clothing on; and on some place perhaps where it is soft, and a bruise is not common as it is in other fractures. Subsequent swelling comes on; but that is after a day or two. There is not much to guide to the seat of the injury except the nature of the fall and the nature of the pain, which is marked and localized. On having such a patient put to bed and the two legs carefully compared, it will be found that there is a slight shortening and considerable eversion. Great eversion is not always the fact; and occasionally the foot may even be inverted, in some forms of impacted fracture. We should readily distinguish the inversion of this fracture from the inversion of a dislocation on the dorsum, from the fact that in dislocation on the dorsum we must have a shortening of one and a half to two inches, and in this fracture we should have a scarcely appreciable shortening, one difficult to measure; one-eighth to one-fourth of an inch, perhaps, marks the outside limit in the simple impacted fracture of the femur. One-fourth of an inch is the common thing, and with moderate eversion, inability to rotate the foot in. They can move the toes in if they make great effort. In addition to this we should not gain much by rotation of the trochanters, because although the arc of the circle through which it sweeps may have been shortened, it is not like the spindle-shaped motion when the shaft is broken completely off. In impacted fracture, then, with slight shortening and eversion, if we examine here and rotate, we shall not appreciate much difference in the arc of rotation from the normal state. These are about the only signs; and they are very slight. If such a case is overlooked, the patient will struggle to sit up, and will be taken out of bed into an easy-chair and begin to try to move about; and, either after a long time the part will slowly recover at the expense of a great deal of pain, or what is more common, the first violent motion of any kind will produce a complete fracture. Total disability will follow, and complete eversion, and a powerless and shortened limb. This, then, would emphasize very much the importance of not churning about such a suspected fracture too much to get crepitus; for if we have converted the impacted into the complete fracture, we have added very possibly a ligamentous union.

A slight injury, very slight, no bruises; the patient is not able to believe at first that anything could be broken; tries to stand, has to give it up; has great pain (being already fifty-five to sixty years of age); he is found to have slight eversion, slight shortening, inability to rotate the foot in, pain localized perfectly about the neck of the femur; and that is all. Those are the symptoms of moderate impaction.

On the other hand, in the complete fracture of the neck of the thigh-bone, as a rule, the patient has a similar fall, not necessarily a more violent one. It depends upon the age of the patient, condition of the bone, and the reception point of force, whether or not he will get a complete or impacted fracture.

The signs differ a good deal from those of impacted fracture, and the signs are very important to distinguish between these two.

Complete fracture usually gives a shortening of one

to one and a half inches. At first this shortening does not take place. It comes on gradually. At first we have slight shortening with eversion and helplessness. The next day shortening will take place, unless some treatment has been applied to draw the limb down. In addition to this the foot is laid off in an everted position. It is completely helpless. The patient can hardly lift the outer side of the foot from the edge of the bed, and cannot invert it to anywhere near the extent he can in an impacted fracture. Pain is great on manipulating the limb. If ether is given, in the early stages, by drawing down gently, and bringing the shaft opposite the neck, we shall generally get crepitus; but we shall get at any rate one other sign, and that is, examining the trochanter, we shall find instead of sweeping through its normal arc, it merely rotates feebly. We can get it more particularly if we seize it; and with the patient etherized, and a person taking the knee, we can see whether this bone rotates through the arc of a circle which comprises several inches, or merely turns on itself. If the latter, you may be quite sure that the neck of the femur is broken off. In addition to this, if the case is untreated for ten or twelve hours, you will have increasing shortening, until it amounts to one, or one and a half inches, in very many cases. We all know how difficult it is to make an accurate measurement as to shortening; and a number of observations must be made and the mean taken. Great care must be taken to place the patient exactly straight on the bed, to have the limbs alike, to have the everted foot held up so as to correspond to the other, that the knees shall be down flat, that the patient shall have no pillow. The surgeon should look at the patient from the foot of the bed, and see if he can draw a line directly through the body to the axis of the head, and then proceed to measure from the anterior superior spine to the inner condyle, and from the umbilicus to the inner condyle; and usually he will detect shortening by both of these measurements, sometimes not exactly corresponding. If one gives one-half inch, and the other three-fourths, he must compromise, and conclude that the true shortening lies between these. This is of no matter one way or the other, except for purposes of diagnosis; and in that way it is of considerable importance. We know when the femur is drawn out of the socket on the dorsum, that it is pulled up and shortened a couple of inches. When we get a fracture of the shaft of the femur, we get deformity in the contour of the limb and great shortening at once. On the other hand, when we get a fracture, impacted, of the neck of the thigh-bone, we get very slight shortening, with eversion; and with complete fracture, considerable shortening after a time, but not at the first moment when the accident occurs. Do not be deceived into the idea when you are first called to a suspected fracture of the neck of the thigh bone, that it cannot be wholly broken off because at first considerable shortening does not exist. You must take all the signs together; examine carefully again during the next twelve hours, and you will probably arrive at an accurate conclusion.

In addition to the chances of getting no union, the patient, if advanced in life and at all of the rheumatic diathesis, is liable also to have a great effort of nature to throw out bone in the wrong place. She will not join the broken part; but throws out bony growths about the socket, and perhaps about the trochanters; the result of which is indurations, bony osteophytes occurring at various points, pain, and more incapacity of the limb than if the patient had not undergone this rheumatic change. We have got to take that into account in making a careful and guarded prognosis with regard to the future utility of a hip-joint injury in an old person. This change may come on after impacted fractures; and it is not safe to say to the patient, "Your bone is cracked, not broken off, and in a few weeks it will join and be as useful as ever," for that is not always the case. In addition to this, a great many of these patients suffer from sciatica, which is annoying, exhausting to the patient, leads of course to wasting and non-use of the muscles about the hip, and subsequent more feeble use of the limb for a long while. This also has to be taken into account.

Now, as to the treatment of these two classes of injuries. It is evident that every effort should be directed to prevent an impacted fracture from being separated from the place where it has been forced in. We are willing to have a little shortening, to have eversion, provided the impaction can stay; because that assures us of a firm bony union. To extend the limb by weights is to risk breaking it off. No extension should be used after an impacted fracture, except with the idea of steadying the limb. It is important that the parts should be held still; and it is best accomplished by the pelvic belt. Put a pad up behind the trochanter, which they cannot shift about and lie on — a pad of hair or cotton, or a little sand bag, which will hold the weight of the trochanter up; the pelvic belt; and additional sand bags to lie about the limb to correct the eversion as far as possible, and to keep the patient as still as possible. In this impacted form, this mode of treatment seems to give very fair results. If we can get along in the old person without long internal or external splints or extension, we by so much diminish their suffering, and the chance of bed-sores, and they generally do better and get about sooner. In the impacted fracture, when we are quite clear about it, we should not manipulate it too much; should support the back of the trochanter; support with a pelvic belt, use sand bags and rest. Six weeks usually will suffice to get it into the condition where the patient can sit up in a chair. After a while the neck will get quite strong; and with the exception of slight shortening and slight eversion, the patient frequently does very well.

On the other hand, in the complete fracture of the neck of the thigh-bone, we cannot be quite sure whether we are to have bony union or not; and we know that if we let the part alone, the muscles within the next twelve to thirty-six hours will pull the lower fragment far up beyond the upper one and produce shortening, and that no union can take place because the parts are not in apposition. Moreover, in addition, this muscular contractility keeps the patient in constant pain; and therefore in this particular injury, at any age, I am inclined to think a moderate extension by weight and pulley, for a while, at least, is a useful mode of treatment. It overcomes muscular spasm; overcomes the pain; draws the parts down into contact; keeps them at rest; puts them in a position where they can unite, if there is any union to take place. The objection against using extension and apparatus on these old people is that occasionally the shock and confinement kill them; and where they show any signs of flagging we should accept the fact that the chance of

life is better than any disability about the hip. We should take off the apparatus, and put them on the double-inclined plane chair, perhaps. In that way we may save life; prevent disasters by sores; retain for them, perhaps, control over the bladder, which is frequently lost; and they may live a number of years. If they are strong enough in the arms and shoulders they get along; for they will be able to use crutches and go about. Many of them live for years, and go about on crutches, with a ligamentous union and a dangling and everted foot. That is the reason why it is sometimes dangerous to use extension; but if the patient can tolerate extension, I am inclined to think a moderate degree of it is indispensable in the early treatment — not applied with the same rigidity or hope of union as we should in fracture of the shaft of the femur, but as a conservative measure to relieve the spasm and pain, and to put the fragments in proper position, and, in addition to that, to keep the parts quiet until nature makes the next change, which she makes if union is going to fail. This change consists in rounding off and smoothing the fragments and leading to a sort of fibrous union; and after that change has taken place, the parts are no longer painful; do not rub together; slide smoothly on each other; and are protected by a species of false membrane. Extension can then as well be taken off as not, for no further relief is to be expected from it.

In old times the whole treatment of fractures of the lower extremity was so much more rigid than now, that the patients, even in vigorous life, frequently got bed-sores, frequently got bad ulcerations of the perineum from the straps that were applied for counter-extension, not infrequently sloughing of the heel from the foot being held in a firm box so long. No wonder that the older surgeons, seeing these disasters in strong subjects, should find that they were pernicious and fatal to an old person.

Now, on the other hand, we have fortunately altered that, and the treatment of fractures of the lower extremity is not so severe. Bed-sore is rare. Sloughing of the heel is practically unknown. I have not seen one for many years, in treating fractures. The perineal strap has been wholly abandoned. The modern treatment of fracture of the thigh is extension by weight and pulley; raising the foot of the bed; preventing rotation outwards of the limb by a long splint or sand bags; and this can be much more safely applied to an old person than the former harsh treatment could be.

These are the arguments, pro and con, in treating complete fracture of the neck of the thigh-bone. Moderate extension, carefully applied, is useful, for it may lead to union. If union has failed to take place after six or eight weeks, there is not the slightest hope of its taking place. Then extension should be abandoned, and the patient got up on crutches; and massage should be used to strengthen the muscles about the joint.

In a certain proportion of cases we shall be annoyed by the persistence of roughness and grating in and about the joint, which is not due to the fracture, which has been rounded and softened in a false membrane, but to the occurrence of chronic rheumatic arthritis. That is the bane of this class of injuries; and it is difficult to do much for the comfort of the patients, unless they can wear some sort of leather splint or support, which will prevent much motion of the joint; or are sufficiently strong to wear a Sayre's apparatus, which extends the leg a little, and allows the patient to walk without much motion or friction in the joint itself.

TUBERCULOUS PLEURISY.[1]

The Shattuck Lecture for 1893.

BY WILLIAM OSLER, M.D.,
Professor of Medicine in Johns Hopkins Hospital, Baltimore.

(Continued from No. 4, p. 85.)

Case IX. Cough and hæmoptysis a year before; gradual onset of the effusion; repeated aspirations; tubercle bacilli found in the exudate; subsequent development of pulmonary tuberculosis.

Christian T., aged thirty-nine, German, admitted September 25, 1889. Patient is a large, well built, muscular man, very well nourished, with thick panniculus adiposis. With the exception of measles as a child, chills and fever in Germany, and a chancre with mild secondaries in 1884, he has enjoyed excellent health. No history of pulmonary trouble in his family. His wife died of consumption four years ago. He was very well and strong until about a year ago, when he had cough with much expectoration, and on one occasion he spat up a mouthful of blood. In January, 1889, he lost in weight, and for the first time began to be short of breath. He had no pain, and was able to be at work, but on any exertion he became breathless, and he states that this has been his chief symptom, and for it he now seeks relief. He does not think that he has had any fever; temperature on admission was 98°. The patient looks in excellent health; weight about 160 pounds; pulse is 72; tongue is clean. The chest is large, well formed. On quiet breathing there is no special difference noticed, but the right side looks fuller than the left. When he draws a deep breath the right expands very slightly. The apex beat of the heart is visible in the fifth interspace, but an inch and a half outside the nipple line. The intercostal spaces are not marked on either side. From behind, the right side of the chest looks fuller than the left. On palpation there is absence of fremitus on the right side, except just below the clavicle, and there is absolute dulness from the clavicle down, and anteriorly it extends to the left border of the sternum. Breath sounds are feeble and distant on the right side, except in the lower interscapular space, where they are tubular and distant. On the left side the breathing is breezy and loud. On the 28th, 30 ounces of clear fluid were removed. On the first of October the dulness was practically the same, and 30 ounces were again withdrawn. This time it was more turbid. On the 6th he was aspirated again; 25 ounces. Cover slips and cultures were negative. His general condition all this time was excellent. He was up and about the ward, and the temperature was normal. On the 11th he was again tapped, and 32 ounces of fluid withdrawn. He had a very slight cough with much muco-purulent expectoration, which was examined daily for seventeen successive days without discovering bacilli. Although the history of an attack a year ago, with cough and hæmoptysis, raised a suspicion that the process might be tuberculous, there was nothing whatever to guide us to that conclusion; and it was not until he had been

[1] Delivered before the Massachusetts Medical Society, June 13, 1893.

under observation for nearly three weeks, and his convalescence was practically established, that tubercle bacilli were found.

On the 18th he was aspirated and 32 ounces were withdrawn, and the note became clear as low as the nipple. On the 27th 19 ounces were removed. On November 7th the note reads: "The right lung is fairly resonant to the fourth rib, and in axilla to eighth, posteriorly to middle of scapula." The fluid again accumulated, and on the 16th 28 fluid ounces of a greenish-yellow, slightly turbid fluid were removed, in which tubercle bacilli were found by two separate observers on the 16th and 17th. The measurements on the right side, 19 inches, on the left 18½ inches. On the 14th he was aspirated for the eighth time, and 32 ounces of fluid removed, of the same clear character. The note was resonant to the fifth rib and behind to the middle of the scapula. In these regions the breath sounds were loud and free from râles. Cultures from this fluid remained negative, and no bacilli were found. Patient gained in weight, lost the cough entirely, and was only short of breath when walking fast. Appetite good; sleeps well. He decided to go out, and was discharged December 19th. At the time of his discharge resonance was clear and a little high-pitched on the right side to the third rib in front; below this there was absolute flatness. Behind it is high-pitched to spine of scapula, and below the note is flat; left lung clear. Breath sounds are normal. This patient was under my observation on and off in the dispensary for many months, and at first seemed to do well. Subsequently he was lost sight of, but I heard that he had developed extensive tuberculous disease of the lungs.

CASE X. Cough for several years, but good health; gradually shortness of breath; right-sided pleural effusion; repeated aspiration; great improvement; discharge: subsequent detection of bacilli in sputum; development of pulmonary tuberculosis.

Henry H., stevedore, aged thirty-six, admitted June 13, 1889, complaining of severe cough. A sister and one brother died of consumption; father of asthma. The patient has been an extremely healthy man, and looks vigorous and well nourished. He states, however, that he has had a cough for many years, certainly for as long as three years. He has been getting short of breath lately. Patient is not at all anæmic; chest is well formed; the right side looks full, and is almost motionless on deep inspiration; the apex beat is in the fifth interspace, two inches outside the nipple line. The left side measures 19 inches, the right 20 inches; expansion on the right side is scarcely a quarter of an inch; on the left over an inch. Percussion gives on the right side a dull note to the clavicle in front, behind to the top of the lung, and to the left a little beyond the mid-sternal line. The left side is resonant. Tactile fremitus is very much lessened, but on saying 99 it is not entirely absent on the right side. Breath sounds are distant, feeble, scarcely audible. Whispered voice over the dull region behind is not heard. Exploratory puncture shows a thin, greenish-yellow, sero-purulent fluid. The following day he was aspirated and 2½ litres of fluid withdrawn; the accumulation was rapid, and on the 17th the condition was very much as before. He was aspirated again, and 32 ounces of fluid removed. This fluid was greenish yellow, with many fat molecules. The fluid re-accumulated rapidly, and he was aspirated again on the 19th with a withdrawal of 32 ounces, and on the 22d with a withdrawal of 29 ounces, and on the 26th with a withdrawal of 27 ounces. On the 29th it was noted that in front percussion is now clear to the level of the nipple; dulness from this point down. Posteriorly it is clear to the middle of the scapula. There are fine crackling râles in the axilla, distant breath sounds over the dull area. By the 8th of July he had improved so much that he was discharged. The heart impulse was in the fifth interspace, just below the nipple, and there were marked friction sounds in the left mammary region and in the scapular region behind. The cover slips and cultures made by Dr. Abbott from the fluid were negative. When he entered the hospital the sputum was abundant, sero-purulent, and was examined repeatedly with negative results. Subsequently his cough lessened and expectoration was more scanty, thicker, and grayish yellow in color. At no time did the temperature rise above 100°, and it was usually between 98° and 99°.

He left the hospital with a diagnosis of pleurisy with effusion, and though there was a suspicion, based chiefly upon the fact that he had had a cough for so long, the diagnosis of tuberculosis could not be positively made, and he looked such a vigorous, healthy man that it did not seem likely. He attended in the dispensary, where I saw him repeatedly. On the 20th of July it was noted that though the apex beat was just below the nipple in normal position, there was everywhere defective resonance over the right side, not absolute flatness, and everywhere from the second rib down there could be heard a loud, leathery, creaking friction. He remained in very good condition, though the cough still persisted. He had no fever. On September 10th tubercle bacilli were found in his expectoration. The leathery, creaking friction persisted, and the defective resonance on the left side. He had lost somewhat in weight, and the cough had become aggravated. On September 4, 1890, I made the following note: There is marked depression of the right shoulder; shrinkage of the right chest. Heart is a little drawn over; impulse in left parasternal line. The resonance is defective above, and shades to dulness below the level of the fourth rib. The tactile fremitus is felt to the base. At the right apex the breath sounds are somewhat feeble; there are numerous râles on coughing, and on drawing a deep breath the sounds are amphoric. Marked cavernous breathing at the apex behind. The breath sounds are feeble over the whole of the right base. Patient was under observation throughout 1891. He constantly had cough, and lost a good deal in weight. On the 22d of June the note was: He still looks well; the feet swell at intervals; temperature normal; the right chest more contracted and the spine is curved. Even on deep inspiration there is very little mobility. Marked cavernous signs at the right apex. There is no note of the patient after this date.

CASE XI. Pleurisy five months before; acute onset of second attack; effusion on left side; gradual recovery; detection of tubercle bacilli in sputum, three and a half years after signs of disease at both apices.

The following case illustrates the importance in diagnosis of a systematic examination of the sputum:

Jos. A., aged twenty-nine, German, admitted July 1, 1889, complaining of pain in the chest, cough and shortness of breath. A brother died of consumption in 1885. Parents dead, but not of tuberculosis. The patient was well as a boy and enjoyed excellent health.

Five months ago he had an attack similar to the present one; was ill in bed for two weeks. He got quite well, but it left him with a little cough. Present illness began six days ago, June 24th, with fever, chilly feelings, and slight cough. He worked until the 29th, and only went to bed yesterday; temperature on admission 102°; respiration 40; pulse 96. Well-built, healthy looking man. Chest well formed, movements equal in upper zone, less on the left side below; most evident on deep inspiration, when the difference in expansion is also very noticeable. Tactile fremitus is much lessened at the left base. There is a hyperresonant note at the left apex, extending into mammary region and axilla, which shades into dulness below the seventh rib, a dulness which is extremely movable and ascends when he sits up. Behind, it reaches to the middle of the scapula. Distant, tubular breathing over the dull region. No friction. Sounds on the right side clear.

Apex beat of the heart not palpable; sounds clear. Dulness in the sitting posture at the level of the fourth rib; movable dulness very marked. The temperature 101°; the cough is better; sputum is muco-purulent, and does not contain bacilli. On the 8th the temperature had fallen to 98°. The effusion had not increased, and the movable dulness is now more difficult to obtain. Though there were a few râles in the left infra-clavicular space, there did not appear to be signs of any cavity. The pleural effusion gradually diminished, and we were inclined to regard the case as one of simple pleurisy. He still had cough, with streaked mucoid and yellowish expectoration, and in it, on the 18th, well-characterized tubercle bacilli were found. He improved very much, and on the 22d decided to go out. On the left side the resonance was clear to the sixth rib. There were sub-crepitant râles over the third rib, and in the lower axilla slight friction sounds. There was dulness in the infra-scapular region, diminished tactile fremitus, and feeble breath sounds.

This man was lost sight of until February, 1893, of the present year, when he applied at the dispensary, complaining of cough and pains in the chest, and diarrhœa. He has kept pretty well since his attack in 1889, and has been at work. He is now fairly well nourished. He has very slight expectoration, and none could be obtained for examination. There is rather a high-pitched note over both apices and there are moist râles, greatly increased by coughing.

The effusion in these cases is sero-fibrinous, often has a greenish tint, is sometimes a little turbid. The fluid is not hæmorrhagic so frequently as in the more acute cases. Bacteriologically it is commonly sterile, though in the case of Christian T. tubercle bacilli were found in the exudate itself.

Sero-fibrinous pleurisy, occurring in the course of pulmonary tuberculosis, does not interest us very much. The cases are by no means uncommon, and the diagnosis is readily made. It may be a very early complication and overshadow in great part the lung disease. The insidious onset and the absence of pain in the side not infrequently lead to errors in diagnosis, and the increasing shortness of breath may be attributed to advance in the original disease, or even to a general tuberculosis. It has seemed to me that the early implication of the pleura, even with recurring exudation, gives a stamp of chronicity to the case. Sometimes it is difficult, even post-mortem, to determine which has been the primary disorder, as in the following case; though, from the great thickening, it is probable that the affection of the pleura preceded the disease at the apices.

CASE XII. Extensive pulmonary tuberculosis; chronic tuberculosis of right pleura.

Alice S., aged twenty, colored, admitted October 12th, complaining of cough, shortness of breath, and weakness. She knows nothing of her family history, further than that her mother died of asthma.

Patient was healthy as a young girl. About four months ago she had a child; was in bed for eighteen days. Her present illness began, she thinks, about a month ago. She has had a cough, but has been able to work until three weeks ago. Says she has only been spitting "thick stuff" for about two weeks, and during this time she had had a great deal of shortness of breath.

Present condition. She is emaciated; much more so than is consistent with a history of an illness of such short duration. The thorax is long and narrow. The clavicular depressions are marked. The expansion is more marked on the left than on the right side. Briefly, the physical examination gave — at the left apex, signs of an extensive cavity, with cracked pot sounds, and amphoric breathing; at the right apex there were indications of a smaller cavity. Behind, there was marked dulness in the supra-spinous fossæ, and impaired resonance over the whole of the right side below the spine of the scapula, with feeble breathing, and râles only on full inspiration. The abdomen was swollen and tympanitic; no signs of effusion.

The patient had an irregular, hectic fever; her pulse was very rapid; she failed progressively, and died on the 18th.

Post-mortem (by Dr. Flexner, abstract). The pericardium is adherent to the right pleura, but is itself smooth on both of its layers. The right lung is universally adherent; the left is adherent at apex and in places behind. The left lung presented a large, irregular cavity at the apex, numerous groups of miliary tubercles and caseous masses, with small cavities in the middle and lower lobes. Where adherent, the pleura is not specially thickened.

On the right side, the pleura is everywhere adherent; the entire lung is much reduced in volume, and measures only 12.5 cm. in length. The top of the upper lobe is occupied by an irregular cavity lined with slate-colored granulation tissue. The pleura of this lung is enormously thickened, more particularly the costal layer, which measures 9 mm. on the side, and about 11 mm. on the diaphragm; and in other places it is at least 2.5 cm. The thickened membrane is uniformly yellowish in color, and shows cheesy masses. Where the visceral and costal layers are not adherent there is fibrinous exudate on both surfaces, which, when scraped off, shows tubercles on the membranes.

The bronchial glands are coal black in color, and caseous. There is marked intestinal tuberculosis, and the retro-peritoneal glands are enlarged and caseous.

(b) With Purulent Exudate.

I have already spoken of the acute purulent form of tuberculous pleurisy. Such cases, however, are rare. The purulent tuberculous pleurisies are much more commonly subacute in onset, chronic and latent in their course. The effusion is usually sero-purulent,

thin, and contains a large amount of fatty matter. It is somewhat interesting to note that among the 32 cases in which tuberculous pleurisy of one form or another was present in the cases examined post-mortem from my wards, there was not an instance of purulent effusion, except in pyopneumothorax secondary to tuberculosis of the lung. In the non-tuberculous cases there were but two with purulent exudate, one consecutive to an acute croupous pneumonia, in a case, oddly enough, of tuberculous peritonitis; the other, in an old man with arterio-sclerosis, who had a purulent effusion on the left side and a sero-fibrinous pleurisy on the right. In both instances pneumococci were found in the exudate.

Our clinical reports embrace ten cases of pyopneumothorax, of which eight were tuberculous, and which, of course, do not interest us specially in this connection. Of the 16 cases of empyema, nearly all of which were transferred as soon as possible from the medical to the surgical side, there was a history of tuberculosis in the father or mother in five cases; in one case two sisters died of tuberculosis; and in one an aunt. One case followed cancer of the pancreas, and one was in an old man with arterio-sclerosis; four cases followed pneumonia. Of the 14 cases which were operated upon, 12 left the hospital either perfectly well or very much improved. The only death was in the instance of empyema secondary to cancer of the pancreas. Unfortunately I have not full particulars of the bacteriological examinations made in all of the cases. The details of the early ones, taken by my late assistant, Dr. Meredith Reese, have been mislaid since his untimely death; so that, from our personal experience here, we can draw no conclusions as to the number of these cases in which the lesion really depended upon the presence of tubercle bacilli. I would again refer to the somewhat interesting circumstance that, with the exception of the pyopneumothorax cases, not a single instance of tuberculous purulent pleurisy was met with in the 101 autopsies in which pleurisy of one form or another was present.

(c) *Chronic Adhesive Tuberculous Pleurisy.*

The special feature of chronic tuberculous pleurisy is the enormous thickening of the serous layers. In all the cases of chronic sero-fibrinous exudate the visceral and parietal layers were greatly thickened. Post-mortem, we see three varieties of this form.

(1) Primary proliferative tuberculous pleurisy. Any one of the three great serous membranes may be primarily affected in tuberculosis, though probably in the majority of all these instances the affection of the lymph sacs is secondary to that of the glands in connection with them, or the organs which they ensheathe. In this form the tubercles developing in the pleural and pericardial membranes cause early union of the surfaces, and there is never at any time a free exudate. With the progressive growth of the tubercles the layers become greatly thickened, and united may measure from one to two or more centimetres in diameter. On section the thickened membranes seem to be made up of diffuse tuberculous tissue, sometimes caseous layers and much fibroid tissue. In the early stages of the process, gray and grayish-yellow tubercle nodules are seen. With the exception of involvement of the bronchial glands, this may be the only tuberculous process in the body. It may be unilateral or bilateral. I have seen but two instances in which it was strictly confined to the pleura, without any sero-fibrinous exudate. One was a young, vigorous Irish girl, who had recently come to the country and was admitted to my wards at the University Hospital, Philadelphia, and died on the third day of an attack of malignant scarlet fever. The pleural layers on one side were enormously thickened and in the condition just described. The other instance was a case of typhoid fever, which died under the care of my colleague, the late Dr. Ross, where the young man had bilateral chronic adhesive tuberculous pleurisy without any effusion. It is not infrequent to see this condition in part of the pleura, with pockets of a sero-fibrinous or curdy exudate at the sides or back, or on the diaphragmatic surface. Dr. Flexner showed at the Johns Hopkins Hospital Medical Society, a remarkable case, to which I shall refer again in a few moments, in which both layers of the pleura, but particularly the costal, were enormously thickened, and miliary tubercles and larger cheesy masses were present. On the diaphragmatic surface alone there was an encapsulated sero-fibrinous exudate.

(2) Much more commonly, with very great thickening, and in the upper zone, perhaps, union of the pleural membranes, there is separation of the layers below and on the diaphragmatic surface, by an exudate usually sero-fibrinous, but sometimes containing curdy or even cheesy material. Thus of the 32 cases presenting post-mortem tuberculous pleurisy, there were 12 with very greatly thickened pleural membranes and sero-fibrinous exudate. Of these six were in connection with old pulmonary tuberculosis. As in Case I, referred to under the acute form, the onset may be abrupt as in acute pleurisy. The membranes gradually become greatly thickened. In that case there was an encapsulated serous effusion over the postero-lateral part of the left pleura, and in the rest of its extent the two layers had united and ranged in thickness from one and a half to two centimetres. In connection with this variety there are two points of very great interest. In the first place it may be extremely difficult to recognize at sight that the process is tuberculous. In this very case of John A., who had been under our care and tapped repeatedly two and a half months prior to his entrance to the hospital with an acute pneumonia, it was only the closest examination of the dense, thickened pleural membranes which revealed old fibroid tubercles. A superficial, macroscopical examination might have entirely overlooked the tuberculous character of the process, as the lung on the left side presented no tubercles or caseous areas. Of course, it would have been in any case a suggestive fact that at the apex of the right lung there was an area of caseation and softening the size of a walnut, but I repeat again, as it is a point of importance, that without the most careful scrutiny the nature of the extensive, chronic pleurisy on the left side might have been overlooked. The second point of interest is the fact, well shown in the case just mentioned, and also in the case of John P., that a chronic tuberculous pleurisy may exist for a long time, and lead to great thickening without any extension of the fibroid process into the lung itself.

(3) And lastly, in some instances, the fibroid processes in the pleura may invade the lung tissue and lead to extensive sclerosis. In only one instance out of the 32 instances of tuberculous pleurisy was there any evidence of direct involvement of the lung.

Case XIII. Chronic tuberculous pleurisy; interstitial pneumonia.

Wm. S., aged sixty, admitted November 1, 1890. The patient is a large, strongly built man; states that his family history is good; denies syphilis; has used alcohol to excess; had typhoid fever five years ago; rheumatism six years ago. He came in complaining of shortness of breath and cough, which symptoms he has had since the spring of the present year. He states also that he has lost very much in flesh. Has had no diarrhœa; no hæmoptysis, and does not think that he has had much fever.

Though a large-framed man he is somewhat emaciated, and is anæmic. Pulse is 100; respiration 36. Chest is broad, of good depth; costal angle 90. There is deficient expansion on the left side; no definite dulness at the apices or axillæ; at the left base the note is high-pitched. The breath sounds are enfeebled in front; expiration slightly prolonged; a few dry râles heard occasionally. There is a friction sound in the lower left axilla. At the left apex the breathing is puerile in type, with fine crackling râles. Many tubercle bacilli were found in the sputa. The case was regarded as one of senile tuberculosis, with some emphysema. He had repeated attacks of shortness of breath, and on the morning of the 9th he had a very severe attack, with small, rapid pulse, and died apparently in syncope. The temperature was very irregular, frequently sub-normal, as low as 96°, and on several occasions 95°.

Autopsy. In right pleural cavity about 200 c. c. of cloudy fluid. The pleura is divided into many compartments by fibrous septa. Both layers are thickened, and present many miliary tubercles and tuberculous granulation tissue. Left pleural cavity is obliterated by firm adhesions. The lungs are voluminous, and they do not retract on opening the chest. There are numerous, dense bands of fibrous tissue running through them, most marked at the apices, and these bands extend directly from the pleura into the lung substance, particularly from the root. There are small areas of caseous pneumonia. The bronchi of both lungs are somewhat dilated and filled with muco-purulent contents. There is a cavity the size of a hazelnut at the apex of the right lung. The condition is that of an interstitial pneumonia, with dilated bronchi, and an extensive tuberculous pleurisy on the right side. There is a small tuberculous ulcer in the larynx.

General Serous Membrane Tuberculosis.

There is a group of cases of tuberculosis in which the serous membranes are chiefly involved, either simultaneously or more commonly one after another, forming a clinical type fairly distinctive and readily recognized. There have been several interesting studies of this condition, notably the Paris Theses of Moran and Boulland in 1884 and 1885, and the careful study of Vierordt.[2] The pleuro-peritoneal membranes may be alone involved, or the pleuro-peritoneal and pericardial surfaces. There are, as noted by Boulland, three groups of cases.

First, an acute tuberculosis, with rapid evolution of the disease in pleuræ and peritoneum, generally consecutive to local disease of the tubes in women, or of the mediastinal or bronchial lymph glands.

Second, cases in which the disease is more chronic in its nature, with exudation in both peritoneum and pleuræ, the formation of cheesy masses, and the occurrence of ulcerative and suppurative processes. In this group the pleural involvement is much more commonly secondary to the peritoneal, or both may be a sequence of pulmonary tuberculosis.

And, third, there are instances in which the pleuro-peritoneal affection is still more chronic, the tubercles hard and fibroid, both the membranes showing much thickening, often with very little exudation. My experience with this form of general involvement is not great, and of the thirty-four instances of peritoneal tuberculosis which have been under our observation at the Johns Hopkins Hospital, in only one was there involvement of the pleura.

I have not met with an instance in which the three serous surfaces were involved together, though many such are on record, and in some the disease has been almost exclusively confined to these membranes.

A knowledge of the existence of this combined infection is somewhat important, as such cases are often of great obscurity. More commonly the affection begins in the peritoneum and may be extremely chronic, and then gradually invades the pleura. In other instances there is a sub-acute pleurisy and subsequent invasion of the peritoneum. The cases often have a very protracted course; there are periods of great improvement, and there may be little or no fever. The following case is at present under observation:

Case XIV. Pleuro-peritoneal tuberculosis; an illness with anasarca; great improvement; persistence of ascites; development of right-sided pleurisy; drainage of peritoneum.

R. A. B., colored, aged thirty, farmer, admitted May 9, 1893, complaining of swelling of the abdomen. Father and mother, two brothers and one sister living. Was healthy as a boy; measles at nineteen, scarlet fever at twenty-seven, no other serious illnesses. Married ten years, wife healthy, three children. Has not had venereal disease; has been a temperate man. For two years past patient has had failing of eye sight (cataract), which, he says, is due to irritating dust.

Present illness dates from last October, when he had an attack of gradually increasing shortness of breath, with swelling of the legs and body. Evidently this was a very severe illness, as he was confined to a chair for three months, and was not able to lie down. He had no special cough, but does not know whether he had much fever. The swelling in the legs gradually disappeared, and has been absent now for about three months. The swelling in the abdomen has persisted. He complains chiefly of shortness of breath on exertion, and of the swollen abdomen. He has a little cough and slight, scanty expectoration. Patient is a medium-sized, moderately well-built man; face not specially emaciated. The temperature on admission was 97.5°; rose in the evening to 103°. He lies quietly in bed, head not elevated, no respiratory distress. The conjunctivæ are a little yellow, pupils are dilated. Mucous membranes are somewhat pale. Pulse is regular, 90 to the minute, the vessel-wall a little sclerosed. The brachials pulsate visibly. The chest is well formed; costal angle good; the lower part of the thorax is expanded. On deep inspiration, the left side moves more than the right. Percussion gives a dull note on the right side, beginning at the sixth rib in the recumbent posture, and in the erect posture at the fourth rib, the dulness being distinctly

[2] Zeitschrift für Klinsche Medecin, Bk. xi.

movable. Behind, when sitting up, the line of dulness is above the angle of the scapula. Percussion is clear throughout the left side. Tactile fremitus is diminished over the dull area on the right side, and the breath sounds are feeble. There is no friction murmur heard. Apex beat of the heart is not very distinct; pulsation in the fifth space, just inside the nipple line. The sounds are everywhere clear. A needle was inserted into the pleura and a serous, greenish-yellow fluid was withdrawn, containing a little blood, which did not coagulate on standing. Cover-slip preparations of the serum showed no organisms, and cultures on agar remained sterile.

The abdomen is distended and large, but symmetrical in the flanks and a little prominent in the umbilical and epigastric regions. On palpation it is everywhere soft, painless, not resistant, except in the upper zone, a little above the level of the navel. In the whole of this region up to the xiphoid cartilage and the costal margin, there is an ill-defined, doughy resistance, which terminates below in a tolerably well-defined border. On three separate occasions a very definite friction murmur was felt. The edge of the liver is not palpable on deep inspiration, nor can the margin of the spleen be felt. On percussion, there is tympany in the hypogastric and umbilical region, slight dulness in either flank, which is movable; no distinct fluctuation wave. There is a flat tympany in the epigastric and hypochondriac regions. The liver dulness begins at the border of the sixth rib, and extends to the costal margin in the nipple line. There are no glandular enlargements; no œdema of the feet. The urine is clear, faint trace of albumin, and a few leucocytes, and a few red blood-corpuscles. The temperature during the first week of admission was irregular, ranging usually between 98° and 100°, but on three occasions rose to 103° in the evening. Frequently the morning temperature was very low. After May 16th his temperature did not go above 100°. He has gained in weight, and the small amount of sputum which has been obtained has always been negative.

A diagnosis of pleuro-peritoneal tuberculosis was made, and on the 10th Dr. J. T. M. Finney made an exploratory operation in order to drain the peritoneum. A quantity of dark, reddish-brown liquid was removed. The peritoneum was deeply injected, and the visceral layers studded with numerous gray and yellow-gray nodular tubercles. The omentum was rolled up, and there was great thickening about the stomach and colon.

It is not very uncommon to see the pleura and peritoneum involved secondarily in chronic disease of the lungs.

(To be continued.)

MEDICAL PRACTICE IN COLORADO. — Hereafter, the Colorado State Board of Medical Examiners will recognize, as entitling their holders to a license, diplomas from such medical schools only as require three years study of at least twenty weeks each year. The school must have required a preliminary examination and given instruction in anatomy, physiology, chemistry, pathology, therapeutics, obstetrics and gynecology, surgery, theory and practice, and hygiene. In default of a diploma from such a school the candidate must pass an examination in the above subjects.

Original Articles.

PHAGOCYTOSIS.[1]

BY HAROLD C. ERNST, M.D.

(Concluded from No. 4, page 89.)

THIS work of Christmas-Dureinck-Holmfeld is a fair example of the arguments brought forward by the opponents of the theory that phagocytosis plays any important part in the production of immunity, even if it is somewhat old; and it is of interest to see in what way Metschnikoff meets the objections, which he does in a paper written shortly afterwards.[8] He says here, that his critic is wrong in the assertion that there were few results obtained by experiments upon warm-blooded animals, as can be easily seen by a reference to his article "Ueber den Kampf der Zellen gegen Erysipelkokken,"[9] with which his opponent is not familiar, and further in the article upon "die Abschwachung der Milzbrand-bacillen im Blute immuner Schafe,"[10] in which he (Metschnikoff) uses the occurrence of phagocytosis as a prognostic sign; when many cells containing bacilli are found, the animal may be considered likely to live, when few are present (or none) death is likely to occur. He says also, that he has worked so often with rabbits, and has got such positive results, that he cannot accept those of his critic, and suggests that perhaps these latter were due to the technique employed; which is not fully described. He says that *fresh* preparations must be used, to which have been added some old Vesuvin solution, or distilled water, as suggested by Koch.[11] If this be done, there will be invariably found, in animals immune either by nature or artificially, many phagocytes containing bacilli. Metschnikoff says further, that he has many times used rats for experiment, and always with the same results as above (except that the distinction is not so sharp), and that he has also used preparations (dried only, however,) from his own blood, for the study of the struggle between the leucocytes and bacteria. He says that the observations of the behavior of bacteria in pus contained in capillary tubes, are not trustworthy,[12] even if the tubes be kept at 37° C., for they are not under natural conditions; and it is also the fact that the bacteria observed by him under these conditions produced no spores, even after three days.

From what we know of Metschnikoff's work, it is but natural to suppose that he does not agree with the objection to the experiments upon cold-blooded animals, on the ground that the results cannot be applied by analogy to warm-blooded animals; for it is just this point upon which he is most insistent. Neither does he agree with the theoretical objections and explanations that the bacteria are destroyed by the absence of oxygen, which fall to the ground since the particular bacteria under consideration are facultatively anaërobic. He goes on to say, that he has never, as is asserted, defined phagocytosis as "a power of the leucocytes of certain animals to eat the invading bacteria (and so destroy them)," any more than he has ever asserted that "every organism is immune to such parasitic dis-

[1] Read before the Boston Society for Medical Improvement, April 10, 1893.
[8] Fort. der Med., Bd. V., 1887, s. 541.
[9] Virch. Arch., Bd. 107.
[10] Ann. de l'Inst. Past. T. I., 1887, No. 1.
[11] Virch. Arch., Bd. 97.
[12] See Ann. de l'Inst. Past., July, 1887.

eases, the parasites of which, the phagocytes of such organism can destroy" — anybody who will take the trouble to read his assertions will see that this is not so. The assertion that "most suppurative bacteria are never enclosed by the leucocytes" is not true, as is shown by many observers; and, in point of fact, the enclosing of bacteria by the leucocytes was first demonstrated in the suppurative bacteria. When the assertion is made that the fluid of pus itself can destroy bacteria, by depriving them of oxygen, how is the retention of its vitality and pathogenic properties by the bacillus of tuberculosis explained, an organism that is extremely aërobic, and requires so much oxygen for its continued vitality? He closes by saying that while he certainly has difficulty in explaining certain diseases by means of phagocytosis, — such as erysipelas, relapsing fever, as well as mouse-septicæmia and tuberculosis, — very certainly he finds nothing in anything of them diametrically opposed to the theory. He has had the greatest difficulty with chicken-cholera; but, in his later work he seems to have surmounted much of it.

Baumgarten's opposition has probably done as much as that of any individual to destroy the influence of Metschnikoff's work. Giving the results of experiments in his own laboratory,[13] he says that they are in wide opposition to the claims of Metschnikoff upon the importance of the leucocytes in producing immunity against, or the healing of bacterial processes. If anthrax spores or bacilli be injected into the dorsal lymph-sack, some of the elements are, after a time, taken up by the leucocytes; *but*, the degeneration and disappearance of the bacilli occur *first* among those in the lymph-fluid, *later* in those contained in the cells. On the contrary, in frogs kept at 25°–30° C., an *increase* of the englobed bacilli may be found, but the frogs die with a great increase of the bacilli in the blood and organs (as of course would be the case, if the phagocytic action had not been sufficient to arrest their development). In pigeons immune to anthrax (and not all of them are so immune) the injected bacilli have disappeared, at the latest, in twelve hours, without the slightest perceptible entrance of any of them into the cells (several of the lantern slides will show that this is not so), and even without the slightest *microscopic* appearance of suppuration; observation of the disappearance of bacilli in distilled water shows that it occurs in the same way, as Baumgarten thinks, by the absence of nutrient material. The process of healing of the cornea after staphylococcus infection seems to show that the leucocytes die *before* the cocci (?), so that they can have nothing to do with the destruction of the cocci.

Again[14] he criticises Metschnikoff's work very severely, saying that it can be concluded, from his own (Metschnikoff's) observations, that phagocytosis was not the healing agent; that in rothlauf, healing occurs without any phagocytic action; that warmed frogs would die any way, without the injection of anthrax bacilli; that in cold frogs there is never a complete attack of the bacilli by the leucocytes, and that these cannot therefore be the curative agent (?); that the same thing is to be said in regard to recurrent fever in apes. His criticism is ironical; and he concludes by saying, that the results of his own and his assistant's work are diametrically opposed to those of Metschnikoff.

[13] Cent. f. klin. Med., 1888, N. 29.
[14] Zeit. f. klin. Med., xv., s. 1.

Metschnikoff[15] reviews the work of Fahrenholz[16] and Czaplewski[17] with especial care, because they form the basis of Baumgarten's criticisms upon phagocytosis. Fahrenholz's conclusions (working with the spores of anthrax) are exactly the opposite of those of Metschnikoff; and the latter in turn shows that the experiments of Fahrenholz of keeping frogs at a temperature of 25°–27° C. were exceedingly crude and unsuccessful, and cannot be taken as evidence. Not only was the temperature faulty, but the spores themselves were of poor quality (p. 37), he having used those that were six years old. Metschnikoff remarks that the wonder was that any results in keeping with his own were obtained with such material; and then says, that, if the experiments had been made in accordance with proper regulations, the results would doubtless have been the same as those of Lubarsch[18] which are in complete accord. Czaplewski rejects phagocytosis, and the "chemical" theory as well, as explaining the immunity of pigeons against anthrax, and frankly confesses that he does not know how it occurs. Whereupon Metschnikoff refers him to Hess[19] and Nuttall[20] on the one hand, and on the other declares that the immunity of pigeons, in this affection, is one of the very best examples of macrophagocytosis; these macrophagocytes being the large mononuclear cells, easily staining with the aniline colors, and occurring so abundantly that Czaplewski must have seen them, but failed to recognize them — probably meaning them by the term "little masses in which the bacilli are crowded together," the occurrence of which he notes as common. They were probably poorly stained; for which reason, Czaplewski did not recognize the nucleus.

Baumgarten makes himself responsible for these two articles;[21] and in the same place from which we have been extracting, Metschnikoff shows that Baumgarten makes statements differing from the original ones of Fahrenholz.

To take another instance: Finger[22] concludes, from the varying behavior of glanders bacilli in susceptible, immune, and immunized animals — their growth in the tissue fluids, their death in other situations, the appearance of leucocytes in immunized and susceptible animals, and their complete absence in immune animals — that we have to do with a complicated process, and that, not only the leucocytes, but the tissue fluid itself, has a great part to play in these processes; facts with which Metschnikoff's theory cannot well be brought into harmony. Which would be very true if that theory claimed all that the critic ascribes to it; but Metschnikoff[23] says that, "among the biological causes [of immunity] are to be mentioned cellular action in general, and especially the microbicidal action of the phagocytes . . . the most difficult point in the study, being to separate the different agents that can assist in producing immunity," showing distinctly that he does not ascribe it all phagocytosis.

Bitter[24] gives a long review of all the work done up to that date upon phagocytosis, including Hess,[25] Rib-

[15] Ann. de l'Inst. Past., T. iv., p. 34, 1890.
[16] Inaug. Diss., Konigsberg, 1890.
[17] Inaug. Diss., Konigsberg, 1889.
[18] Cent. f. Bakt., Bd. v, No. 19.
[19] Virch. Arch., 1887, Bd. cix, s. 379, 380.
[20] Zeit. f. Hyg., Bd. iv, s. 378, exp. 12.
[21] Zeigler's Beitrage zur Path. Anat., Bd. vii.
[22] On Immunity and Phagocytosis in Glanders, Zeigler's Beitrage zur Path. Anat., Bd. vi, Heft, iv.
[23] Etudes sur l'Immunité, Ann. de l'Inst. Past., 1889, p. 289.
[24] Zeit. f. Hyg. 1888, Bd. iv, s. 318.
[25] Unt. zur Phagocytenlehre, Virch. Arch., Bd. cix, s. 365 and Bd. cx, s. 313.

bet,[26] Lubarsch[27] and Pawlowsky,[28] in favor of Metschnikoff's arguments; and Baumgarten,[29] Weigert[30] Christmas - Durckinck - Holmfeld[31] and Emmerich[32] against his conclusions. Upon the basis of this review and the work of Nuttall[33] he concludes as follows: "Nowhere do we find in Metschnikoff's work, or in that of his supporters, *absolute proof* that phagocytes take up and destroy vigorous disease-producers that are dangerous to the body. Against this conclusion are the new observations upon the intensive degeneration of virulent bacilli in the body-fluids without the help of the cells; the late taking up of the injected bacilli by the cells; the greater taking up, and with increased readiness, of the injected cultures in complex cases; and, finally, the appearance and activity of the phagocytes, especially at such a time and in such a condition of the body, that the attack of the infectious element and the pressing need of the body is over; further, he considers that the phagocytes employ their "eating" power only against bacteria that have lost some of their vital energy. He does not deny that phagocytosis *may* occur in accordance with the hypothesis of Metschnikoff, but he does not consider that its general applicability (validity) is established. If it is desired to prove this, it must be demonstrated, without doubt, that phagocytosis occurs at once upon the entrance of living and fully virulent bacilli, and that an effective destruction of them does not occur without the intervention of the cells. That phagocytosis does occur as soon as it may be reasonably supposed that the cells can exercise their function may be seen in some of the slides to be shown; but neither Metschnikoff or any one else would attempt to claim that this is *all* that is necessary for the resistance of the organism to an attack in all cases.

Wolfheim[34] experimenting with the staphylococcus aureus, and producing keratitis with it in the rabbit, found many more cocci between than in the cells, and that, after from two to six days, the phagocytes showed more or less signs of degeneration. Therefore, the phagocytes can in no way act *alone* as the destroyers of the bacteria.

Buchner[35] seeks to oppose phagocytosis by asserting that the leucocytes are attracted solely by substances extracted from the bodies of bacteria, and that, as a consequence, the bacteria must have been already destroyed by the bactericidal properties of the body-fluids, before the leucocytes proceed towards the invaded region. Such a supposition is opposed by these facts: (1) leucocytosis in infectious diseases is observed from the beginning, that is to say, when the bacteria are living; (2) the increase of the leucocytosis is seen to occur along with the rise of temperature, and ceases exactly at the "crisis," just when a large number of bacteria perish; (3) leucocytosis is seen in cases in which bacteria are living in the blood, as in the anthrax of susceptible animals and in the recurrent fever of man; (4) the leucocytes, as Buchner himself acknowledges, englobe living bacteria — when the bodies of the bacteria are very numerous, but associated with toxic products, the leucocytes, instead of being attracted, are repelled by these toxines.

Emmerich[37] goes much further than Behring, asserting that phagocytosis has *nothing* to do with immunity. Metschnikoff shows that his experiments were fallacious, when he asserted that the bacteria of "Rouget" were completely destroyed in twenty-five minutes, a time too short for phagocytosis to occur, for Metschnikoff could not, and Emmerich has not since been able to, show the complete destruction of the bacilli in less time than a number of hours, which is plenty of time for the leucocytes to arrive at the threatened point and to exercise their phagocytic property.

Among the mass of papers that have been written upon the subject it is a relief to find the following conclusions by Lubarsch:[37] (1) It appears as yet to be impossible to give a general explanation of immunity, even for a single bacterial disease; (2) for certain cases, it appears extremely probable that immunity is produced by a reciprocal action between the cells and the bacteria, which, as I suppose in opposition to Metschnikoff, has its results outside of the cells; (3) a bacterial-destroying property of the circulating blood *independent of the body cells* is, as yet, unproven.

Ruffer[38] has made a series of investigations "On the Phagocytes of the Alimentary Canal," and formulates his conclusions as follows: first remarking that it is interesting to note that the phagocytic phenomena seen in the intestines occur most commonly in, and in the neighborhood of, Peyer's patches, the seat of so many of the diseases occurring in them; (1) migratory cells possess the power of passing to the surface (of the intestine); (2) there are two sorts of these cells, the *micro* and the *macro* phagocytes; (3) the latter produce also microphagocytes; (4) the macrophagocytes possess the power of destroying microphagocytes; (5) both destroy bacteria; (6) in the normal mucous membrane, the bacteria never occur free between the cells in the lymph or blood channels; (7) the destruction of the bacteria constantly going on in the lymphatic tissue of the intestines has the greatest similarity to the destruction of pathogenic bacteria in resisting animals.

Metschnikoff[39] has shown the very interesting fact, that phagocytic intracellular digestion goes on in certain cases in an acid medium, although, in other instances in the same experiment, no reaction makes itself apparent. In some of the macrophagocytes seen in his experiments, there was to be seen, near a red granule of litmus, a vacuole containing blue granules of the same substance, showing that the production of the acid intracellular material may be limited to one special portion of the cell.

Time might be taken up almost indefinitely by reviewing articles for and against the assertions of Metschnikoff, but this would be useless. Perhaps the best method for bringing this part of the discussion to a close will be to quote from his book upon "Inflammation," his answer to one of the most prominent objections to his theory. He says (p. 230 et seq):

"But, they say — and this objection has been made

[26] Deut. Med. Woch., 1884; and Der Unt. path. Schimmelpilze im Korper, Bonn, 1887.
[27] Ueber Abschwachung der Milzbrand-bacillen im Frosch-Korper, Fort. der Med., 1888, Bd. vi, s. 4.
[28] Die Heilung des Milzbrands durch Bact. u. s. w., Virch. Arch., Bd. cvii, s. 494.
[29] Path. Mykol., Bd. i, s. 105.
[30] Fort. der Med., Bd. vi, No. 3.
[31] loc. cit.
[32] Die Heilung des Milzbrands, Arch. f. Hyg., Bd. vi, 4.
[33] Zeit. f. Hyg.. Bd. iv, s. 353.
[34] Beit. z. Path. Anat. Zeigler, Bd. iii, 1888, s. 403.
[35] Munc. Med. Woch., 1891, Nos. 32, 33; and Trans. Int. Med. Cong., 1891.
[36] Munc. Med. Woch., 1891, s. 554.
[37] Ueber die Ursachen der Immunitat., Fort. der Med., Bd. viii, No. 17, 1890.
[38] Quart. Journ. Mic. Science, p. 484, 1890.
[39] Recherches sur la digestion intracellualire, Ann. de l'Inst. Past., T. iii, 1889, p. 25.

many times — if phagocytic reaction is developed in order to protect the organism against danger, how is it, that just when the organism is the most menaced, the phagocytes refuse to carry out their part? Here, also, the objection comes from an incomplete knowledge of the principles of the theory. Just because the defence by the phagocytes is developed in accordance with the law of natural selection, and not following out a predestined purpose, it is perfectly natural that cases should occur in which the phagocytes do not accomplish their function, which threatens great danger and death to the organism. In nature, there are found varying characters, sometimes useful, sometimes hurtful to the organism. The first produce survival, the second death. If, for example, we consider two organisms — the one, the phagocytes of which are easily repelled by the bacterium; and the other, whose phagocytes manifest a positive sensibility, bringing on an abundant phagocytosis — the first will easily become the prey of the parasite, will be eliminated by natural selection; whilst the second will resist the infection, will survive, and will produce successors endowed with the same phagocytic powers. It is evident that in such conditions, the activity of the phagocytes will augment, supported by selection.

"But the curative force of nature, of which inflammatory reaction is the most important element, has not yet reached a perfect adaptation. The frequency of disease and of premature death proves this quite sufficiently. The phagocytic property has not yet reached its last stage of development, and is still undergoing perfection. Often the phagocytes retreat from the enemy or destroy the elements of the organism of which they form a part (as in the scleroses). It is this imperfection that has for so long rendered necessary the intervention of man — not satisfied with the action of his natural curative force. . . . But if on the one hand, medical science has so much that should rest upon biology, of which it constitutes but a part, this service should not be gratuitous.

"General biology itself can gain great advantages by including morbid phenomena in its studies. Often biology finds difficulties in its study of the processes of evolution, because these phenomena are presented under a completed form. So that, for the close analysis of natural selection, the too well-balanced phenomena occurring in nature do not furnish favorable material. To shed light upon this general law, less stable phenomena must be studied — in short the actions less completed, in which the action of natural selection can be observed from day to day. Such are precisely to be found in morbid phenomena with the reactions which they excite — the struggle between the organism and its aggressors, which gives the best opportunity for a consecutive study of the progress of natural selection. In this struggle there always occur survivals, the result of selection, and deaths, occurring for the same reason. On the one hand there are the victorious organisms selected and the parasites destroyed; on the other, the vanquished organisms are eliminated and the conquering parasites selected."

I have endeavored to give, as briefly as possible, a selection of the main arguments against the theory that phagocytosis plays an important part in many of the processes resulting from the attack of the living organism by infectious bacteria, together with some of the replies that may be made to these criticisms. I have also endeavored to show that it is not possible to ignore all the facts that have been brought forward in favor of such a view, as well as to do away with the common impression that the theory is urged to the exclusion of any of the other phenomena that undoubtedly occur. Personally, I am constrained to believe that it is a force that is always present and ready to act, although under many conditions its action is of the slightest, and practically imperceptible by the rough means of observation at our command.

There are, of course, many gaps to be filled in the chain of evidence, but there seems to be no one more ready to acknowledge this than the original author of the theory himself; and certainly no one has, of late years, shown as much brilliancy and persistency in carrying out the investigations necessary to establish his point.

LEUKOCYTOSIS AS AN ELEMENT IN THE PROGNOSIS OF PNEUMONIA.

BY RICHARD C. CABOT, M.D.,
Medical Interne, Massachusetts General Hospital.

In view of the conclusions reached by Uskow, Kilodse, W. S. Thayer and others, on the prognostic importance of leukocytosis in pneumonia, the blood of forty-nine cases of well-marked croupous pneumonia occurring at the Massachusetts General Hospital since February 1, 1893, has been examined in dried cover-glass preparations. These cases occurred in the services of Drs. E. N. Whittier, W. L. Richardson, R. H. Fitz and F. C. Shattuck, to whose kindness I am indebted for permission to report the results:

Leukocytosis was present in 41 cases, of whom 10 died.

Leukocytosis was absent in 5 cases, of whom *all died.*

Leukocytosis was doubtful in 3 cases, of whom 1 died.

In order that the influence of personal equation might be as nearly as possible the same in all cases, an exactly identical technique was used in all.

A small drop of blood flowing freely from a prick in the ear, was touched with the centre of a carefully cleaned cover-glass. This glass was then quickly dropped with the wet side against another glass, and the two slid apart before they had time to stick. The layer of blood on the dried glasses is, after a certain number of trials, approximately of the same thickness in each case, if the observer use always the same technique. In the writer's experiments the field of a Leitz No. V objective with a No. 3 eye-piece focused on the centre of a cover-glass so prepared, contains from 500 to 1,000 red corpuscles. This has been verified by repeated counts. Such a field, if the blood were normal, would contain one to three leukocytes. In the pneumonia cases examined, there were in a large majority of the cases from five to ten leukocytes in such a field; one case was counted, and showed a proportion of one white to fifty-four red.

In the five cases above mentioned, in which no leukocytosis was found, the examination was repeated several times at different hours of the day, but the results were always the same.

As far as these figures go, therefore, it would seem that while the presence of leukocytosis is not a very hopeful sign (one-fourth of those in whose blood it

was present having died), *its absence makes the outlook bad.* Moreover, in two of these five cases the other reasons for giving a bad or guarded prognosis were not present. The individuals were both under fifty, were not at all alcoholic or weakly, and there was nothing in the condition of pulse, temperature, nor in the physical signs in the chest, to lead one to expect a fatal result. Yet both went down with surprising rapidity, and without any reaction to vigorous stimulation and supportive treatment.

Medical Progress.

RECENT PROGRESS IN OBSTETRICS.

BY CHARLES M. GREEN, M.D., BOSTON.

IMPREGNATION DURING THE PUERPERIUM.

KRONIG,[1] at a meeting of the Obstetrical Society of Leipzig, March 20, 1893, reported the following case: The patient, twenty-two years old, healthy, had always menstruated regularly every four weeks. The birth of her first child took place July 4, 1892: the child was suckled by the mother for ten days, and throve. On the eighth of July, four days post partum, coitus took place, followed by sexual abstinence for three months: the menstrual periods did not appear. Fœtal motion was first felt in November, 1892, and the child was born March 10, 1893, 243 days from the date of coitus, and 247 days from the birth of the last preceding child. The infant bore every appearance of maturity, although, of course, it was premature by 27 days: it was 20.8 inches long, and weighed over 7.5 pounds.

From this case Krönig draws the following conclusions:

(1) During a pregnancy of 243 days, reckoned from the fertile coitus, a mature child can be developed. [This amounts simply to saying that an eight months infant usually *appears* mature, a statement which no one can gainsay. — REP.]

(2) Spermatozoa retain [that is, may retain] their vitality in the lochial secretion.

(3) Ovarian activity does not entirely cease during pregnancy; the follicles ripen so that they may reach maturity very soon post partum.

(4) Menstruation and ovulation may occur independently of each other.

(5) In strong and healthy persons in the puerperium the endometrium may rapidly reach such a degree of regeneration that it is possible for the impregnated ovum to obtain a nidus very early in the convalescence.

In the discussion Rösger remarked that he had seen in the dead subject, as early as two days post partum, glandular crypts in which an ovum could take root. The customary representation of the puerperal endometrium as a wound-surface holds good only for the placental site. Rösger cited, as a curiosity, a case of coitus intra partum.

THE MANAGEMENT OF BREECH PRESENTATIONS.

Etienne[2] (Nancy) reports a series of fifty breech labors, with viable fœtuses, with no infantile mortality, — a remarkable result, considering the usually accepted mortality of ten per cent., or even of 25 to 33 per cent. (Hegar) in primiparous cases. Etienne's cases were conducted in the Nancy Lying-in Hospital between 1883 and 1891: there were 76 cases in all; but 26 were rejected in which the fœtus was either dead ante partum or non-viable.

The secret of the success in the Nancy Clinic is a skilfully exerted suprapubic pressure during the extraction, whereby the extension of the head and the slipping up of the arms are prevented. [This is no new manœuvre: it has long been taught in the best schools, and its importance is occasionally emphasized in journal articles. It is probable that the usual mortality, while partly due to a general want of obstetric skill, is almost entirely attributable to the want of intelligently applied vis a tergo while the operator is making tractions on the child's legs and trunk. Unquestionably, well directed pressure in the proper axis on the fundus uteri through the abdominal walls will almost invariably prevent the extension of the head and the upward displacement of the arms; and consequently it should be an invariable rule of practice that the obstetrician should have with him, during the second stage of breech cases, a skilled assistant. It is not enough to send for assistance after the arrest of the head has taken place, for then it is too late. We are confident that if the above rule is conscientiously followed the fœtal prognosis in breech cases will be greatly improved. — REP.]

CEPHALIC VERSION IN PRESENTATIONS OF THE BREECH.

Owing to the greater fœtal mortality in breech labor, this mortality being about ten per cent. as compared with two per cent. in head presentations, many teachers of obstetrics, especially of the French school, have recommended that cephalic version be performed by the external method, before rupture of the membranes. The wisdom of this procedure as a rule of practice has been questioned by teachers in this country, owing to risks of prolapse of the funis or of the fœtal extremities, or again of entanglement of the cord and interference with the fœtal circulation. Now, no less an authority than Tarnier[3] reports a case as a warning against cephalic version in most cases of breech presentation. A patient had been admitted to hospital with a breech presentation, and a foot not being within reach Tarnier decided to perform cephalic version by the external method: this was done; but subsequent vaginal examination showed that a hand had prolapsed, and a little later the cord also prolapsed, and meanwhile the membranes ruptured. Tarnier admitted that it would have been better not to turn the child.

THE INFLUENCE OF CHLOROFORM UPON THE COURSE OF NORMAL LABOR.

Dönhoff[4] gave chloroform to various degrees in five cases of normal labor, and observed its influence upon the expulsive forces (uterine and abdominal muscles), as shown by the tachadynamometer. His conclusions follow:

"(1) The administration of chloroform, even in diminutive doses, exercises a retarding influence upon the progress of labor. The muscular pressure sinks

[1] Centralblatt für Gynäkologie, No. 19, 1893.
[2] Arch. de Tocol. et de Gynæc., May, 1893; British Med. Jour., June 3, 1893.
[3] Journ. des Sages Femmes, November 16, 1892; British Med. Journ., December 17, 1892.
[4] Archiv für Gynäkologie, xlii, 2; Amer. Jour. of Obstetrics, June 1, 1893.

to one-half of the amount of that present before the administration of the anæsthetic. In eight observations the average figures were as 13 : 7.

"(2) The expulsive force of the uterine contractions steadily diminishes during the exhibition of chloroform.

"(3) The labor pains, besides being weaker, are also more irregular during a slight anæsthesia. During deep anæsthesia the intervals between the pains are longer, and all the pains are diminished in strength.

"(4) The pains increase immediately after discontinuing the anæsthetic. The expulsive force of the contractions after stopping the chloroform, compared with the force just before its administration, is, as expressed in figures, 2 : 3.

"(5) The labor pains generally continue diminished in power for some time after discontinuing the chloroform. In one case they had resumed their normal intensity in ten minutes, while in two other cases two hours had expired.

"(6) If the action of the abdominal muscles is only slight, this action is checked entirely by a superficial anæsthesia, but soon reappears after the stopping of the chloroform.

"(7) The action of the abdominal muscles continues, but in diminished force, during superficial anæsthesia, if before the exhibition of the chloroform it was vigorous in character.

"(8) Deep anæsthesia abolishes entirely the action of the voluntary muscles.

"(9) The intervals between the pains become longer immediately after chloroform is administered, and the labor pains, besides being less intense, decrease in numbers about 25%.

"These experiments show that chloroform, no matter in what degree it is administered, exercises a retarding influence upon the progress of labor. The expulsive forces are lessened, and there is no corresponding diminution of the resistance."

INVOLUTION OF THE PUERPERAL UTERUS.

Ries [5] has studied this subject clinically and anatomically, dividing the work into two parts, of which the first deals with the question "How long does the internal os uteri remain patent?" while the second discusses the involution of the placental site, clinically considered. He bases his conclusions on an examination of 46 puerperæ from the fifth to the sixteenth day of convalescence. There appears to be no actual distinction between primiparæ and multiparæ in respect to the completion of os closure. The earliest day on which the inner os was no longer open, Ries found to be the eighth. When the lochial discharge is very profuse, the os is found to close less soon than when the discharge is scanty. On the other hand, the earlier the fundus sinks to the brim, the more surely one expects to find the os closed. After premature labor, and especially after abortion, the os closes earlier than after full-term labor.

The placental site was generally found near the inner os, and about the size of a saucer. Its surface was either only somewhat uneven and rough, or one found firm, roundish, projecting humps, which could not be separated by forcible pressure with the fingertip; or, finally, these humps were covered with soft masses, which in some cases had spread, fungus-like, over the whole placental site. These humps are thrombi in the venous sinuses: by their varying degree of firmness one can discriminate between old and fresh thrombi. The soft covering is formed by the blood flowing over and coagulating on the thrombi from unclosed vessels at the time of placental separation. The humps and their covering, so far as they do not become organized, disappear partly as ingredients of the lochial discharge, partly they are cast off as small clots, and finally a part is discharged only at the next succeeding menstruation. It cannot be said with certainty just when the placental site is completely restored to the condition of the rest of the endometrium.

[5] Zeitschrift für Geburtshilfe u. Gynäkologie, xxiv, 1; Centralbl. f. Gyn., 1893, No. 25.

THE INFLUENCE OF TREATMENT OF A SYPHILITIC MOTHER, ESPECIALLY DURING PREGNANCY, UPON THE HEALTH OF THE INFANT.

Etienne [6] draws the following conclusions from the study of thirty-two cases of pregnancy in syphilitic women:

"(1) The fœtal mortality, in cases in which the mother has never been treated, is enormous, reaching 95.5 per cent. If treatment be applied throughout pregnancy, we may hope to obtain almost complete immunity from this infant mortality.

"(2) Syphilis attacks the fœtus especially during the fifth, sixth, and seventh months of intrauterine pregnancy.

"(3) Paternal syphilis is less injurious to the fœtus than maternal syphilis.

"(4) The prognosis differs according to the stage of pregnancy when the mother becomes contaminated.

"(*a*) If infection occurs during the first three months, and is not treated, the mortality during the first few days after delivery reaches one hundred per cent.

"(*b*) The prognosis is a trifle better, if infection occurs during the fourth and fifth months.

"(*c*) In one case of infection at the eighth month, the child lived and was apparently healthy; in a second similar case the child was in good condition at birth, but developed symptoms of syphilis later.

"(*d*) Whenever suitable treatment was administered, the mortality was *nil*.

"(5) In no case were any unfavorable results met with from internal medication during pregnancy."

RECENT LITERATURE OF PUERPERAL ECLAMPSIA.[7]

(1) Gerdes reports the results of a number of bacteriological investigations made by himself, with cultures from the blood, lungs, liver and kidneys of two women who died from eclampsia. Keeping these cultures in an incubator for twenty-four hours, he found colonies of bacteria resembling the bacillus of chicken cholera. Inoculations with pure cultures produced in mice convulsions, coma, and death: and he concludes that "Puerperal eclampsia is produced by a specific microorganism found in the blood and various tissues of women suffering from this disease."

(2) Hofmeister experimented with cultures obtained from Gerdes, and believes that Gerdes's eclampsia bacillus is nothing but the bacterium of putrefaction.

(3) Haegler subjected three cases of well-marked eclampsia to a number of bacteriological experiments; but his results were not in accordance with those obtained by Gerdes, and he does not believe in the bacteriological origin of eclampsia.

[6] Annales de Gyn., April, 1892: American Jour. of Obstetrics, February, 1893.

[7] American Journal of Obstetrics, March, 1893.

(4) Fehling considers the theories of Gerdes, Doléris and others as unproven and improbable. He says that in four hundred cases of eclampsia, observed by Olshausen, Dührssen, and Gusserow, albuminuria was present in ninety-eight per cent.; and that we do not need bacteriological theories to explain the etiology of puerperal eclampsia.

(5) Döderlein made bacteriological investigations in eight cases of eclampsia, subjecting the blood, urine and various tissues to a number of experiments, all of which resulted negatively. He agrees with Haegler and Hofmeister, and concludes that the Gerdes bacillus is not the cause of puerperal eclampsia.

(6) Dührssen has written an important article on this subject. He considers that blood intoxication is the most frequent cause of puerperal eclampsia, the toxic agents being kreatin and kreatinin, the elimination of which is prevented or diminished by a simple nephritis of pregnancy, by chronic nephritis, hydronephrosis, hyperæmia of the kidneys, and through a retention of urine caused by pressure upon the ureters. The kreatin and kreatinin are deposited in the cortex of the brain, and excite certain motor centres capable of producing convulsions and coma. Excitability of the nervous system, especially of the nerves of the genital organs, and strong emotional disturbances, add to the irritation produced by the altered condition of the blood. Rarely a hyperæsthetic nervous system may in itself produce a reflex eclampsia.

[The weight of authority, therefore, discards a microbic origin of eclampsia, and for the present, certainly, the theory of renal insufficiency with central toxæmia holds good.—REP.]

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR meeting, April 8, 1893, the President, DR. CHARLES M. GREEN, in the chair.

DR. F. B. HARRINGTON, for the Committee, read resolutions on the death of Dr. C. P. Strong, which were published April 13th, in the *Boston Medical and Surgical Journal.*

An account of Dr. Strong's last illness and the post-mortem results were given by Drs. F. B. Harrington, W. F. Whitney and A. K. Stone.

DR. ABBOT said that the lamentable death of our beloved associate brought very forcibly to one's mind the question whether it is possible for a septic fluid to be absorbed by the skin without any lesion of the surface. Such occurrences, he thought, must be extremely rare, but he could testify from personal experience to their possibility.

Some years since, after making at the Massachusetts General Hospital an autopsy in a case of double empyema, in which he removed the lungs without protecting his hands in any way, he was taken within a few hours with severe chilliness and a feeling of general *malaise*, which were followed at once by an eruption on both hands of a general dermatitis, which appeared in the form of bright red, swollen patches, from an inch to an inch and a half in length, and half an inch to an inch in breadth, mostly on the dorsal surface, accompanied by a general uncomfortable sensation of fulness rather than pain, and much swelling of the fingers and thumbs, especially of the left hand. He remembered particularly that the left thumb was at least a quarter larger than natural. The symptoms, both general and local, passed off in two or three days without special treatment, except cooling lotions. The septic poisoning in this case could only be explained by a general penetration of the skin, as there was no lesion anywhere. As to the question whether such an absorption could have taken place merely by the way of the ducts of the glands of the skin without penetration of the epidermis, Dr. Abbot inquired whether Professor Whitney could give the Society any fresh information on the mooted question of the possibility of fluids passing through this membrane.

DR. W. F. WHITNEY said that there was no doubt but that chemical products of bacterial life could be absorbed through the unbroken skin, producing symptoms of septicæmia. This had been done experimentally in animals. As to the absorption of bacteria themselves through the unbroken skin, this is doubtful, although they may get into the sweat glands and hair follicles, and from these gain an entrance into the system.

DR. J. C. WARREN reported

A CASE OF DIFFUSE HYPERTROPHY OF THE BREASTS.

M. C. G., twenty-three years of age, was born in Newburyport. Her father and mother died of phthisis. Her general health has always been good. She was confined three years ago with her first child. The labor was normal and she made a good recovery.

Her breasts have always been large. At the time of entering the hospital she was six months advanced in pregnancy. During the past month the fœtal movements have been distinct. The breast began to enlarge six weeks before a lump made its appearance first in the right breast after which there was a general enlargement of the whole breast. This was followed by the same growth in the left breast. Both axillæ were occupied by soft, almost fluctuating, swellings, but there is no redness, or other symptom of inflammation. The left breast measured twenty-seven inches in circumference; the right twenty-six inches. The areolæ are large and deeply pigmented. The patient appeared to suffer no pain or inconvenience from the growth. According to Billroth these tumors consist of fibrous tissue principally. They belong to the class of growths sometimes called cysto-sarcoma. The hypertrophy usually begins at the time of puberty or a year or two later. The growth takes place rapidly and is completed within two to four months. In one of the cases reported by Billroth the growth began again at the time of puberty.

In the case recently reported by Dr. Porter,[1] the largest breast measured thirty-eight inches in circumference and the smaller twenty-eight inches. The microscopical examination by Dr. Whitney showed the growth to be diffuse intra-canalicular fibroma; therefore, not a true hypertrophy of the breast. Dr. Porter reports sixteen cases operated upon with only one death. The operation was amputation in all cases. Barton has collected in all thirty-four cases of this affection.

Since this report was made the patient has been confined, and the breasts have, according to Dr. W. F. Anthony of Bradford, diminished in size.

[1] Boston Medical and Surgical Journal, March 3, 1892.

A CASE OF CONGENITAL HERNIA OF THE LIVER.

The mother was married five years ago. Her first child was born three years ago, but died aged four months of cholera infantum. This child was born November 14, 1892. Labor began at 6 the evening before and was completed at 10 A. M. and was normal in every respect. Dr. G. W. Nickerson, of Stoneham, who was present at the birth of the child, states that he noticed quite a tense bladder-like tumor expanding the umbilical cord at its point of insertion. The child was brought immediately to the hospital and an examination showed that there was an umbilical hernia into the covering of the umbilical cord.

An operation for its reduction was performed twenty-four hours after birth. The coverings of the cord were dissected off from the tumor with some difficulty as they were adherent at several points. It was then found that the contents of the hernia were the liver. The umbilical vein and hypogastric arteries being tied, the cord was removed and the liver pushed back with considerable difficulty through the umbilical opening. The liver was about the size of an mandarin orange. The wound was closed with six silk sutures. Union took place partly by first and partly by second intention. There has been no return of the hernia at the time of writing (April 7th) and the child is in good general condition with the exception of an eczema and a right inguinal hernia.

Dr. W. L. Richardson said there had been two cases at the Boston Lying-in Hospital of hypertrophy of the breasts, and in neither case was there any milk.

Dr. T. M. Rotch said Dr. Warren's case of hernia of the liver reminded him of a case reported in the English journals, where several abdominal organs were found in the rupture.

Dr. F. B. Harrington said that the operation in this case shows how well prolonged etherization is borne in young infants if done carefully. He had operated on an infant of two weeks for webbed fingers, ether being given continuously for two hours by Dr. Scudder. Very little ether was required, a few drops only at a time, in the way that chloroform is given to adults. The infant showed no ill effects of the prolonged etherization.

Dr. Edward Reynolds mentioned an operation for the relief of imperforate rectum he had performed on an infant of a few days, where prolonged etherization was needed, and without ill effects as far as the ether was concerned.

Dr. Rotch remarked that fifteen or twenty years ago it was often thought unsafe to give ether to infants.

Dr. J. Chadwick said that in the first volume of the Proceedings of the Gynæcological Transactions he had given the result of the dissection of five cases of umbilical hernia in infants, in some of which he believes the liver was present, as in Dr. Warren's case. In the case of the Siamese twins a portion of the liver was found together with an extensive blood circulation in the band uniting the twins.

Dr. Warren said that his case perhaps differed from others in the fact that the liver and nothing else, came out in the rupture. It was a case of wandering liver. His own experience had been that children bear etherization remarkably well.

Dr. T. M. Rotch reported orally

A CASE OF INTERNAL HYDROCEPHALUS,

in a child of four years, where recovery was complete with the exception of total blindness.

Dr. F. B. Harrington reported a case of

ECTOPIC PREGNANCY,

where he had recently removed the left Fallopian tube in which the pregnancy had taken place. Two years previously he had operated for pregnancy of the right tube.

Regular meeting, May 13, 1893, the President, Dr. Charles M. Green, in the chair.

Dr. F. W. Draper reported

A CASE OF CRIMINAL ABORTION,

that had come under his observation as medical examiner. A single woman, two months pregnant, went to an abortionist on or about the 7th of January. She grew very sick and died on the 13th of January, and Dr. Draper was called upon to make the post-mortem examination eight hours after death. There was a profound general icterus. There was a foul discharge from the vagina with diphtheritic patches about the introitus. On opening the abdomen a general diffuse, purulent peritonitis was found, with large, soft spleen and gray liver and other evidences of general septic poisoning. The os uteri was patulous and there were diphtheritic ulcerations about the os. The uterus measured four and three-quarter inches in depth. Near the os there was distinct evidence of puncturing with some sharp instrument. Higher up in the uterus was another puncture one-half an inch deep, while at the fundus was a hole with sloughing edges, through which three fingers could be easily passed. There was evidence in the uterus of pregnancy, as well as a clearly defined corpus luteum in one ovary. Death was clearly due to peritonitis, following instrumental puncture of the uterus. The abortionist was arrested and, what rarely follows in these cases, was convicted. The question arose in the course of the trial as to whether it would be possible for the patient to puncture the uterus herself. Dr. Draper had thought this impossible, as the pain would be so great as to cause the patient to desist.

In the discussion which followed, several of the members suggested that the uterus was comparatively insensible to pain, bearing curetting, for example, and even accidental puncture during that operation without suffering, so that as far as pain was concerned that would not prevent extensive puncture.

Recent Literature.

The Obstetric Examination: A Short Guide for Physicians, Students of Medicine, Midwives and Students in Midwifery. By Prof. E. Credé, M.D., and Prof. G. Leopold, M.D. Edited by J. Clifton Edgar, M.D. 8vo. pp. 16, with five cuts. New York: L. Hydel. 1893.

This little treatise is a reprint of two chapters from the fifth edition of the "Text-Book of Obstetrics for Midwives," published by the authors in 1892. It is presented in this accessible form with the commendable object of "giving the widest possible publicity to the most recent experiences concerning the prevention

of puerperal fever." The preface states that these two chapters "contain the external examination and the antiseptic regulations, which are to be regarded as new and of fundamental importance." The great and fundamental importance of these teachings no modern obstetrician of note will question; but we can hardly look upon them as new. The value and the technique of the external examination were fully taught in Vienna, to our personal knowledge, some fifteen years ago; and both Chadwick and Mundé, in this country, wrote on the subject, essentially as now, at least as long as fifteen years ago, if our memory serves. Moreover, rigid asepsis has been taught and practised in the best schools and lying-in hospitals in this country for the past eight years.

It is not to be denied, however, that the value of the external examination, as a means of restricting the necessity for frequent vaginal examinations, and thereby diminishing the opportunities for septic infection, is not as fully appreciated as it should be: nor are the rules of rigid asepsis carefully carried out by any considerable proportion of physicians who were educated more than eight or ten years ago. We welcome, therefore, this and all similar treatises which will spread the doctrine of the heterogenetic origin of puerperal infection. We cannot agree with the authors (page 15) that "it is nothing less than criminal to try to assist in the stage of dilatation by attempting to stretch the cervix with the fingers and to push back the anterior lip of the cervix." While agreeing that a normally progressing first stage should not be interfered with, we know that the above procedure in some cases is distinctly indicated, and is unattended with danger, if skilfully and aseptically performed.

As a whole, we commend the teachings of this monograph highly, and bespeak for it an extensive circulation.

A Hand-book of Local Therapeutics. By ALLEN, HARTE, HARLAN and VAN HARLINGEN. Edited by HARRISON ALLEN, M.D. Philadelphia: P. Blakiston, Son & Co. 1893.

This book describes the local action only of the more important drugs under four heads: general surgery, diseases of the skin, diseases of the ear and air passages, and diseases of the eye. The pharmaceutical and physiological action, as far as it applies to external medication, are given for each drug, and by the omission of everything pertaining to internal therapeutics, it has been possible to condense in such a way as to make a hand-book easily referred to. It will be found very useful and convenient to the general practitioner, as well as to the specialist, in one of its four departments, but it might very probably have been found of more general use if these departments had been separated, and four separate publications sold. The book is well prepared. Where the use of a drug for a particular purpose is recent, the authority is mentioned in full.

Kirke's Hand-book of Physiology. By W. MORRANT BAKER, F.R.C.S., and VINCENT DORMER HARRIS, M.D. Thirteenth edition. Philadelphia: P. Blakiston, Son & Co. 1892.

The thirteenth edition of this well-known hand-book does not need an extended notice. This edition has been thoroughly revised and somewhat enlarged It is eminently well fitted as a text-book for students or for interesting reading for the general practitioner

THE BOSTON

Medical and Surgical Journal.

THURSDAY, AUGUST 3, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

CAUSES OF LONGEVITY.

IN this age of conventions and organizations, the very aged have not been forgotten. Arrangements have been made by the editorial staff of *La Science Médicale* for a convention of old men at Paris. No one under ninety years old will be eligible, and every one offering himself for membership must show proof of the time and place of his birth. Travelling and hotel charges are to be defrayed by the management of the congress, and good medical care is promised, that the guests may undergo no improper strain or exposure. Prizes are offered, and will be presented by the presiding officer. The president is a hearty centenarian who has practised medicine at Havre for seventy years. No restrictions as to nationality are to be placed upon the delegates, but extremely old persons are not expected from countries outside of France. At the time of the last census about 200 persons were reported in France as being 100 years old and over. A considerable portion of these were residents of departments bordering along the Pyrenees.

The foregoing statement leads us to consider, briefly, some of the conditions and circumstances which are attendant upon the attainment of advanced age, as gathered from observation of our own population. By the Massachusetts State Census of 1885, it appears that there were then living in the State 1,016 persons between the ages of 90 to 94 years (inclusive), 245 were between the ages of 95 and 99 years, and 43 persons of 100 years and over. A very small portion of those living between 90 and 99 years arrive at, and pass the age of 100.

The number of patients who have died in each year, having been recorded as attaining the age of 100 and over in Massachusetts, has been about 20 annually, or about one in 100,000 population, a ratio which considerably exceeds that of France.

In the Forty-ninth Registration Report of Massachusetts (1890), the compiler presents the statistics of 203

persons who were reported as having died during the ten years (1881–1890) at the age of 100 and over. Of this number, 153 or 75.4 per cent. were females. (By the State census of 1885, the number of females living over 80 years of age was nearly double that of males.) The greater exposure of men to accidents, to weather agencies, to the constant strain of business life, to the anxiety of providing for the family, all tend to shorten the life of men. The deaths by accident among men are more than threefold greater than among women, and men commit suicide in about a threefold ratio as compared with women.

Of this number of 203 deaths of centenarians, 115 or 56.7 per cent. were of foreign birth; 184 or 90.6 per cent. were married. It should not be inferred, however, from this, that married life is necessarily conducive to longevity, since at least nine-tenths of all persons who arrive at advanced age (80 years or more) are married. Of this class, a large part are widowed; and the number of widows of 80 years and over is about three times as great as that of widowers in Massachusetts.

In scrutinizing these data more carefully, there are found to be other considerations, which have an important bearing upon the attainment of advanced life. Of these 203 persons, more than half were born in foreign countries, chiefly in Ireland and the British Provinces. Of the early history of these persons, and of the accuracy of the statements relative to their ages little can be known, since their birth registers are not readily accessible. There were, however, eighty-four centenarians who were born in the United States, and of whom we have a more definite account. Two-thirds of these were born in Massachusetts, and the remainder in other States, mostly the adjoining New England States. A considerable number of these (twenty-one) died in the same towns in which they were born; and these were not mostly cities, but such small, quiet, rural towns as Seekonk, Williamsburg, Templeton, Leicester, Halifax, Essex, Bernardston, Duxbury, Holland, etc. In each one of twenty-four other instances a centenarian was born in one town and died in an adjoining town; and in nearly all of these, each town was a small agricultural community, free from the turmoil and bustle of city life. For example: one was born in Sturbridge and died in Brimfield; another was born in Goshen and died in Chesterfield, etc. These are places remote from railway communication, and are rarely heard of, outside of each quiet circle of rural life. It does not appear that any of these centenarians were burdened with great wealth, or that many of the number were excessively poor. One only is reputed to have filled a pauper's grave at Tewksbury.

Aside from the very important and controlling influences of inheritance, of diet, and of temperate habits, the points to be learned from these few statistical data, are that longevity is promoted by a quiet, peaceful life, in a retired and rural community, where there is freedom from nervous strain, and worrying, and excessively laborious toil. The business man, with increasing cares and responsibilities, the mill-operative toiling hard to keep together the souls and bodies of himself and his family, the politicians, the hard-working professional men are not the chief contributors to the centenarian ranks. Dr. Holyoke, indeed, became a centenarian, but his example has rarely been followed by his professional brethren.

English statistics confirm some of the foregoing statements. The Registrar-Genèral stated, in 1871, that the number of persons in England who arrived at the age of 100, averaged 78 annually for the preceding ten years, and of this number 21 were men and 57 were women.

Men of science have occasionally expressed doubts as to the evidence of any human life having exceeded a century. But the testimony of town and parish records too often confirm the fact to admit of reasonable doubt. One insured life closed at the age of one hundred and three, in which all the necessary documentary evidence was produced in confirmation of the accuracy of the statement.

The conditions and environment which favor long life appear to be a long-lived ancestry, mental tranquility, sobriety, freedom from care and anxiety. It would, therefore, seem to be a hazardous undertaking to summon a congress of extremely aged people to the noise and tumult of a gay and crowded city, many of whom have probably never traveled far beyond the confines of the rural villages in which they were born.

THE MILK-SUPPLY OF BOSTON.

The annual report of the department for the inspection of milk and vinegar, shows a very satisfactory condition of the milk-supply of the city, and especially a satisfactory system of inspection by which the purity of the milk-supply is insured. Although this system of inspection has existed for several years, weak spots have been strengthened by more or less recent legislation and decisions of the courts. An important advance was obtained in the decision by the Supreme Court, that the milk laws apply to sales by hotel keepers of milk to be drunk on the premises. The inspectors found a very large proportion of samples obtained from these establishments to be of a very poor grade — skimmed, watered and colored. This poor milk was especially found in restaurants frequented by the poorer classes. Many prosecutions were undertaken against these restaurant keepers, resulting in nearly every case in a conviction, the result of which has been a very speedy improvement in the quality of the milk sold in restaurants throughout the city. A large number of dealers during the hot weather have been convicted of mixing different preservatives with the milk. These preservatives are manufactured by the wholesale and sold through the country, the contents often being unknown to the milkmen who buy them. The common preservative is a substance made of a mixture of boracic acid and borax, and its presence in milk is easily detected. An important decision has recently been

given by the Supreme Court, on the question whether cream is a form of milk, and whether the milk laws are applicable to it? The decision sustains the government in its prosecution of those who were complained of for selling poor cream.

An appendix to the report includes the laws of Massachusetts in regard to the inspection and sale of milk, and the important decisions of the Supreme Court under these laws. The decision previously mentioned in regard to cream makes it illegal to sell cream containing a foreign substance, in this case boracic acid, under the same law as applies to milk.

A person may be convicted of selling adulterated milk, although he did not know that it was adulterated. The constitutionality of the law is confirmed, providing that if the milk shall be shown upon analysis to contain more than 87 per cent. of watery fluid, or to contain less than 13 per cent. of milk solids, it shall be deemed to be adulterated. If milk, reduced below this standard by the subtraction of the cream, be offered for sale, it must be sold as skimmed milk, and not as milk. Skimmed milk must contain at least nine and three-tenths per cent. of milk solids, exclusive of fat, and the vessels containing it must be plainly marked "Skimmed Milk." In the case of skimmed milk, the defendant would be liable, unless the buyer had notice or knowledge that the milk was skimmed milk. The addition of annotto, whether injurious to health or not, is punishable under the statute.

The inspection and regulation of the sale of vinegar and oleomargarine is under the same department. In the case of the latter, the law provides that whoever sells oleomargarine or any other imitation of butter, shall have a label in plain sight upon the package, and that all carts peddling such articles, and all shops in which they are sold, shall show a sign announcing the fact.

THE CHOLERA.

The East still continues to be the chief seat of the cholera. In Marseilles, Toulon and some of the smaller towns of the French Riviera a few new cases occur from day to day, but no alarm is felt as yet. In Spain there has been a small outbreak in the province of Corunna since the 25th of July, but no official proclamation has been made. On July 28th one case occurred at Altona, but with that exception no cases have been reported from last year's seat of the plague. Smyrna has been declared infected since July 25th, though the number of deaths has been small. In Buda-Pesth the precautions taken on the first appearance of the cholera July 12th, have been successful, and only a few sporadic cases have occurred. In the provinces of Turkey there has been no special increase in the number of cases reported. Russia has not fared so well. While the epidemic in Moscow has been confined chiefly to the poorer classes with an average of about fifteen new cases a day, it has steadily increased in the provinces, especially in Podolia and Toola, where there have been nearly five hundred deaths so far.

The condition at Mecca is as bad as ever and becoming worse. Since June 8th there have been over 6,000 deaths in that city alone. In Jedda the death-rate is equally high; and the combined mortality of Jedda, Mecca and Minah is already over 15,000. The daily death-rate is about 1,000, and the pilgrims still continue to arrive and depart. It is estimated that there are now 200,000 of the faithful gathered in the vicinity of Mecca. The quarantine station at El Tor, which accommodates 11,000 only, is quite inadequate for the 40,000 pilgrims on their way. As they arrive worn and exhausted by the journey, they are in no condition to stand out against the disease. The death-rate is already reported to be large, but no figures are given.

The only point of immediate danger to our own country at present is Naples. The cholera made its appearance there July 16th, with four fatal cases; and a week later was reported to be prevailing quite generally, though not recognized officially by the government. So far there have been about 400 cases and nearly 200 deaths. Telegraphic reports state that the daily number of cases is not increasing, and the number of deaths is less.

MEDICAL NOTES.

Another "Diploma Factory." — "The Preparatory Medical College of New York" has ceased to exist since the arrest of the entire faculty and treasurer, a Dr. W. M. Rew, who sold diplomas for twenty dollars apiece.

Yellow Fever. — Reports from Santos show that the yellow fever is still widely prevalent. The daily mortality is among the hundreds. Business is at a complete standstill, and the hospitals are totally inadequate to care for the sick, who die faster than the bodies can be buried.

A New Medical School. — A new medical school has been organized and chartered in Richmond, Virginia, to be known as The College of Physicians and Surgeons. Dr. Hunter Maguire is the President of the Board of Directors.

A New Columbarium. — The United States Cremation Company has just dedicated a new columbarium in connection with its crematory at Fresh Pond, Long Island. It is a two-story building of white marble and contains six hundred niches for cinerary urns.

A Case of Blue-Illness. — Pic recently showed the Society of Medical Sciences of Lyons, the heart of a patient who died of cyanosis at the age of forty-two years. The cavities were dilated, the walls hypertrophied, and the auricles communicated by an opening large enough to admit a wheat straw. During life the man had been subject to bronchitis, and to cyanosis upon slight causes. Bleeding during attacks of cyanosis had relieved the patient and prolonged his life.

Hypnotism in Russia. — Hypnotic suggestion as a therapeutic remedy has received official sanction in Russia. The government has announced that physicians may have the right to apply hypnotism in the care of the sick, on the sole condition that they report to the authorities each case of its application with the names of the physicians present at the time. All announcement of "private sittings" is forbidden.

NEW ENGLAND.

The Garbage Crematory in Lowell. — For some time past a crematory of garbage has been in operation in Lowell and there seems to be much difference of opinion about its merits and defects. At a meeting before the Board of Aldermen, a petition was discussed, claiming that the odors from the crematory were offensive, and evidence was brought to show that its presence was detrimental to the health and religion of the community. This latter accusation was founded upon the allegation that the odor in a neighboring church was so bad that it was impossible to gather a congregation in it. The petitioners swore to six different kinds of odor, and about as many diseases caused by them, but this evidence was somewhat weakened by the defence, which showed that one of the principal objectors had entered a similar complaint against a glue factory some years ago, which had finally been decided in court to be unobjectionable and which is still working. An agent of the Board of Health gave evidence on the part of the defence that he had gone to the top of the crematory and smelt the smoke as it issued from the chimney, not only without injury to his health and his religion, but even without any unpleasant sensation. The Board finds it impossible to identify all of the numerous odors described, but believes that none of them came out of the crematory with the smoke. The matter is still under consideration.

NEW YORK.

State Board of Health Reports. — At a meeting of the State Board of Health held July 27th, Dr. Florence O'Donohue, of Syracuse, was elected President of the Board in the place of the Hon. Thomas Newbold, resigned. The bulletin of the Board states that the death-rate for June was 17.50, while that for the six months ending June 30th was 21.30. Four thousand three hundred deaths are attributed to the epidemic of influenza which began in March and is now practically ended.

The Electrocution of Taylor. — The execution of the murderer Taylor at Auburn prison on July 27th was accomplished in a very unsatisfactory manner. Immediately after the first shock, which rendered the man unconscious but did not destroy life, the armature of the dynamo became burned out and the instrument was consequently useless. It therefore became necessary to make connection with the Auburn city electric-lighting plant, and there was a delay of an hour before the second, and successful, application of the current. Among the spectators on this occasion was Dr. Nettie E. Jenkins, who was the first woman to witness an execution by electricity. She will probably not be anxious to witness another very soon.

Miscellany.

THE STATE BOARD OF HEALTH EXHIBIT AT CHICAGO.

Among the interesting hygienic exhibits at Chicago, that of the Massachusetts State Board of Health is particularly valuable. Besides the diagrams and charts illustrative of the statistics of life and health and comparative mortality, of diseases and epidemics, and the general work of a well organized Board of Health, there are several features of the exhibit which are especially interesting. The models of the Lawrence Experiment Station and the apparatus there used for study and research in municipal hygiene; the maps and plans of the Metropolitan Sewerage System; and photographs of the sewerage fields already in practical operation, gives one a new sense of the extent and importance of proper, thorough control of public sanitation. The Department of Food and Drug Inspection, showing types of injurious or fraudulent adulterations found in this State, is well worth a visit, if only to see the dishonest ingenuity of man.

The display of the official reports and blanks which are used for the routine work of the Board, are full of suggestion for physicians from small towns where local sanitation is just beginning.

METATARSALGIA.

Bradford,[1] in his article on metatarsalgia, spoke of the desirability of further evidence upon the nature of this affection. Morton reports six new cases. It will be remembered that Morton [2] accounts for the severe and paroxysmal character of the pain by referring to the anatomical relations of the plantar nerves to the bony structure of the foot. Owing to the setting back of the fourth and especially the fifth metatarsal joints they have more lateral motion than the other three toes. The base of the first phalanx of the little toe is on a line with the joint of the fourth, and the head of the fifth metatarsal bone when subjected to lateral pressure is, therefore, jammed against the neck of the fourth metatarsal bone or rolls under it to a slight degree, thereby pinching the branches of the plantar nerve distributed to the joint.

It is this pressure of a tight boot which demands the instant relief so characteristic of the affection. The frequent occurrence of a slight degree of this neuralgia may be relieved by careful selection of the shoes worn by the patient. Firm low-heeled shoes which allow no slipping of the foot may be sufficient to give relief. The obstinate and severe cases, however, yield only to operative treatment. According to Morton this should consist always of excision of the metatarso-phalangeal articulation which is the seat of pain, or of amputation of the toe above the joint. This view of the cause and treatment of metatarsalgia is opposed by Hoadley [3] on the ground of clinical and anatomical experience. He points out that while the fourth and fifth metatarsal bones are shorter than the

[1] Boston Medical and Surgical Journal, July 16, 1891.
[2] Annals of Surgery, June, 1893.
[3] Chicago Medical Recorder, July, 1893.

others, the head of the fifth is not sufficiently far back to allow it to fall against the neck of the fourth, and although the outer bones are movable and can roll up and down it is not possible for them to slide above or underneath as described by Dr. Morton.

"Another reason for believing that this supposed cause for the neuralgia is not correct, is that the nerve which supplies the toe, and the one that has been accepted as the neuralgic nerve, could not possibly be implicated if one bone pressed upon the other, as described, as the nerve lies below the transverse ligament and not between the heads of the metatarsal bones. Without regard to the length of the metatarsal bones, it is quite possible for the nerve to become injured by lateral compression, as the foot will fold upon itself so as to involve the digital nerve. It being the digital nerve that is involved, the articulation, or the articular nerves, have but little to do with the painful affection."

Accordingly, the author advises the trial of thick leather or of metal insoles to prevent the rolling together of the foot. If the neuralgia is persistent, he recommends the division of the internal branch of the external plantar nerve, the one usually affected. His clinical experience bears him out in this belief as the report of six cases goes to show. The only case not relieved by proper shoes was at once cured by excision of the nerve on which was found a small neuroma. The advantage of being able to offer a patient a simpler operation than excision of a joint of the foot is worth consideration.

DIET IN GLYCOSURIA.

WHATEVER the underlying cause of glycosuria may prove to be, there are certainly two well-marked clinical forms of the disease. The simpler one, in which the glycosuria is dependent upon and commensurate with the ingestion of saccharine or starchy foods, responds well to a rigid diet, and by careful regimen may be entirely controlled. The graver form in which the sugar seems to be formed in the body from the albuminoids, is controlled with great difficulty even by the most rigid diet. Schmitz,[1] after careful study of several of these cases, found that the excretion of sugar, instead of being diminished by a strictly nitrogenous diet, was increased so soon as the meats and broths were in great excess over the carbohydrates.

Guided by this fact and the great distaste for nitrogenous foods which the patients all had, he changed the character of the diet. Meat, eggs and fish were given in small amounts only; and he ordered more varied foods, containing fats, but scanty albuminoids and starches. Under this change the patient's strength, appetite and weight increased, and the sugar excreted diminished in some cases four per cent.

The diagnosis between the two forms is made particularly upon the time of sugar excretion. In the simpler form the urine contains sugar chiefly by day and shortly after eating; the urine which is passed early in the morning before breakfast containing little or no sugar. In the grave form, the sugar being formed more independently of the diet, the urine shows less difference between night and morning; and it may usually be considered when the urine contains sugar eight hours after the taking of food, that the case is of the graver form and that the sugar is formed from the albumens.

[1] Deutsche Med. Woch., 1893, No. 27.

In this latter class he gives the following diet:

For Breakfast: Preferably, cocoa, when pure and unadulterated, on account of its fat; a little milk; and either twenty to thirty grammes of rye, or forty to fifty of white bread. If the cocoa is not liked, the patient may have tea or coffee, and an egg-cake made as follows: two or three teaspoonfuls of oatmeal, one egg, and two teaspoonfuls of sour cream are beaten together, salted, and baked with a little fat or bacon.

For Lunch: a glass of wine, and a sandwich of twenty to forty grammes of bread and some sardines.

For the Noon Meal: a broth with a little rice or vermicelli (two pounds of meat should furnish enough broth for three meals); a little fish; potatoes, if not mealy; vegetables very sparingly — as young beans, spinach or cabbage — may be given. Potato salad is often much relished, as are cakes made of raw grated potato-meal, as above described.

For Tea: a meal as at noon, but always varied. Dry wine may be allowed.

He reports three cases so treated with a scanty nitrogenous diet, in which the sugar diminished very much, although the daily ingestion of bread was nearly one hundred grammes. Under this regimen also the acetons disappeared from the urine.

Saundby[2] offers the following receipts for diabetic food, which he has found palatable and not expensive.

Almond cakes: One pound of ground almonds; four eggs; two tablespoonfuls of milk; a pinch of salt. Beat up the eggs and milk, and stir in the almond flour. Bake in flat tins in a moderate oven for forty-five minutes.

Cocoanut cakes: Three-fourths of a pound of fine dessicated cocoanut: one-fourth of a pound of ground almonds; six eggs; half a cup of milk. Mix as in the other cake, and bake for twenty-five minutes.

Both these cakes keep well for a week.

Blanc-mange made of Iceland moss, and sweetened with saccharine, is absolutely free from injurious constituents, and very palatable.

THE NON-OPERATIVE TREATMENT OF SALPINGO-OVARITIS.

THE importance and proper relations of the non-operative treatment of salpingo-ovaritis are well shown in a recent paper by Dr. Shoemaker, of Philadelphia.[1]

Certain cases of pelvic disease are, of course, unmistakably surgical. A large number of women, however, have of late years been treated most lavishly by surgical procedures, have desired or allowed their uterine appendages removed for chronic tubal inflammation, when with proper and patient treatment the operation could have been avoided.

The questions chiefly to be considered in any given case are:

(1) Will the woman be improved by the operation, and ought it to be done in her case?

(2) What are the prospects, temporary and permanent, of systematic non-operative treatment?

The first question will be answered differently for each case. The social, personal and physical conditions of the patient are all factors to be considered. The long and tedious road of douching and massage cannot be opened for the working woman, whose right to an early operation is far greater than that of a

[1] Annals of Gynecology and Pædiatrics, vol. vi, No. 10.
[2] Birmingham Medical Review, May, 1893.

woman of riches and full leisure. The domestic undercurrents are by no means to be ignored. There are a small number of cases in which the adhesions are old, firm and numerous, and the cause of obstinate reflex disturbances. These should be operated upon early, where they occur in women dependent upon their own labor for existence. At first examination, however, it is not easy to distinguish old adhesions from firm, new ones, which may, however, be absorbed.

The second question can be answered more categorically. In the author's experience no case of chronic pelvic inflammation can be cured permanently by non-operative treatment. There will always be the line of weakened resistance and the focus for a lighting up of the old trouble. It leads to far better judgment and treatment of a case to have this point well understood; it is always a question of relative palliation.

Under systematic treatment, faithfully carried out, both by patient and physician, the patient's health can be so restored, the attacks of inflammation so lessened and alleviated, that her life may become of comfort and usefulness. The rest-cure, massage, careful tamponing and douching must be unremitting. Tampons of elastic wool were found more satisfactory if covered with a thin layer of cotton. Where much tenderness is found, a useful addition to the well-known borogly ceride tampon is ichthyol, which when made into an ointment with four parts of lanolin, may be put on the tampon against a tender region. This substance seems to have a decided influence over subacute inflammation, and serves to lessen tenderness very rapidly.

A true conservative treatment, which is not an easy dalliance has much promise, and should receive greater attention than it has had heretofore.

VISCERAL PHLEBOTOMY.

Harley[1] claims great success in the treatment of hepatic inflammation by withdrawing blood directly from the congested liver. His method consists in piercing the viscus with a long trocar about seven millimetres in diameter, so as to "wound one or more blood-vessels of sufficient caliber to yield a free stream of blood." After sufficient blood is withdrawn the finger is held over the mouth of the trocar till the stream of blood has clotted back into the viscus. The trocar is then withdrawn and the wound closed by adhesive plaster and a bandage applied.

He reports successful treatment by this means of several cases of chronic and acute hepatitis, and has seen it applied to pulmonary congestion. He seems to have met with no cases of subsequent internal hæmorrhage, a danger not to be disregarded, for his only reference to this occurrence is indirect. He says, that on withdrawing the instrument it is important to get the clot in the canula to break off from that in the canal so as to leave the latter behind, in order that by its presence there it may prevent any oozing of blood from the organ. This is best done by giving a slight twist to the canula at the moment it is felt to leave the organ. The external puncture is closed by adhesive plaster and a flannel bandage bound firmly over it to bring the internal surface of the parietes against the wounded organ, to prevent the possibility of accidental internal hæmorrhage.

[1] Journal of the American Medical Association, vol. xxi, No. 4.

It is hardly probable that the recommendation to extend this procedure to all the viscera, as the spleen and kidneys, will meet with a wide acceptance.

THERAPEUTIC NOTES.

The Care of Catheters. — Gouley[1] gives the following directions for the care of catheters. Web catheters should be kept at full length to prevent cracking. In cold weather they should be warmed slightly before being shaped for use. In spite of good care web catheters are liable to harden in a few years, especially if not in constant use: they then lose their shape, even if they do not crack, and should be discarded. After use they should be carefully dried inside as well as out, and kept wrapped in *dry* antiseptic gauze in metal cases. Soft-rubber catheters should be kept at full length in *moist* antiseptic gauze, away from the air, as exposure to it causes the rubber to become dry and brittle. The life of a soft-rubber catheter is short at best, but when in daily use and annointed with fatty lubricants, they swell and become soft and useless in a few weeks. Where continued daily catheterization is necessary, it is best for the patient to have a set of ten or twelve catheters and to use two each day, so that the same catheter may be carefully dried and sterilized and used only every fifth or sixth day. Both web and rubber catheters are much injured by fatty substances, and even by vaseline, though to a less degree. The lubricant should be unirritating to the urethra and contain no fat or free alkali to deteriorate the varnish of web catheters or to soften the rubber catheters. The following formula has been found satisfactory: Three hundred and sixty grains of white castile soap, powdered, are added to two fluid ounces of boiling water and stirred until a homogeneous jelly is formed. Enough hot water is then added to bring the whole up to 1,200 grains, after which the mixture is strained through cotton gauze and one-half a fluid-ounce of tincture of quillaja poured into it. This mixture when cool has the consistency of honey. A little carbolic acid may be added and the lubricant kept in collapsible tubes.

Piperazin in Uric Acid Diathesis. — Witzack reports the following conclusions from the use of piperazin in cases of uric acid diathesis:

(1) In all cases the diuresis was noticeably increased; the daily amount in one case of uric acid arthritis being more than doubled.

(2) The specific gravity of the urine was always lowered; the urine was acid, but never neutral or alkaline.

(3) The appetite was not affected, nor was there any general disturbance from the drug.

(4) Subcutaneous injection even of the smallest doses was always painful and accompanied by considerable infiltration around the point of injection. Abscess formation was avoided with great difficulty.

(5) The salts of the drug were more reliable than the drug itself since they are less hygroscopic and allow a more accurate dosage.

(6) The drug should be given in sufficiently large doses, one gramme a day, over a considerable period before the effect can be rightly estimated as some patients respond slowly.

[1] New York Medical Journal, July 22, 1893.

METEOROLOGICAL RECORD,

For the week ending July 22, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer. Daily mean.	Thermometer. Daily mean.	Maximum.	Minimum.	Relative humidity. 8.00 A. M.	8.00 P. M.	Daily mean.	Direction of wind. 8.00 A. M.	8.00 P. M.	Velocity of wind. 8.00 A. M.	8.00 P. M.	We'th'r. * 8.00 A. M.	8.00 P. M.	Rainfall in inches.
S..16	29.72	79	90	68	71	62	62	S W.	W.	17	11	C.	C.	
M..17	29.86	75	81	69	53	72	63	W.	W.	3	4	O	O.	
T..18	29.88	78	87	70	69	81	75	S.W.	S.	6	15	O.	R.	0.23
W.19	29.98	74	81	67	66	66	66	N.	N.W.	8	6	C.	C.	0.02
T..20	30.03	70	82	59	48	59	54	N.	S.W.	7	17	C.	C.	
F..21	29.88	75	88	62	57	52	54	W.	W.	10	10	C.	C.	
S..22	29.66	78	91	66	57	88	72	W.	N.W.	12	8	O.	O.	.38
[illegible]	29. 90		86	66			64							0.63

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. [illegible] Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 22, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York . .	1,891,306	1257	793	43.36	6.96	37.12	.16	3.36
Chicago . .	1,438,000	812	496	34.92	5.40	29.16	1.44	1.56
Philadelphia .	1,115,562	677	413	41.25	8.25	34.85	.90	1.95
Brooklyn . .	978,394	582	372	44.52	9.35	40.29	.34	.51
St. Louis . .	560,000	—	—	—	—	—	—	—
Boston . .	487,397	204	77	24.50	12.25	17.64	—	3.92
Baltimore . .	500,000	—	—	—	—	—	—	—
Washington .	308,431	146	77	28.98	5.52	18.63	4.14	3.45
Cincinnati . .	305,000	148	76	25.46	13.40	20.10	2.01	2.68
Cleveland . .	230,000	133	80	51.00	3.00	40.50	3.00	2.25
Pittsburg . .	263,709	142	85	42.70	2.10	32.20	2.80	2.10
Milwaukee . .	250,000	80	40	25.00	5.00	15.00	1.25	5.00
Nashville . .	87,754	26	10	19.25	11.55	3 85	7.70	—
Charleston . .	65,165	47	13	21.30	10.65	10.65	2.13	—
Portland . .	40,000	13	3	15.38	7.69	—	—	15.38
Worcester . .	96,217	44	21	34.05	6.81	29.51	—	—
Fall River . .	87,411	59	45	66.11	3.38	64.22	1.69	—
Lowell . . .	87,191	60	38	46.48	3.33	41.50	1.66	1.66
Cambridge . .	77,100	38	21	42.08	2.63	36.82	—	—
Lynn . . .	62,656	24	10	20.80	4.16	8.32	4.16	—
Springfield . .	48,684	23	11	52.20	13.05	34.80	8.70	—
Lawrence . .	48,365	—	—	—	—	—	—	—
New Bedford .	45,886	24	16	62.40	8.32	58.24	4.16	—
Holyoke . . .	41,278	—	—	—	—	—	—	—
Salem . . .	32,233	13	6	15.38	7.69	15.38	—	—
Brockton . .	32,140	9	3	33.33	11.11	11.11	—	11.11
Haverhill . .	31,306	8	2	—	12.50	—	—	—
Chelsea . . .	30,264	8	6	12.50	—	12.50	—	—
Malden . . .	29,394	13	4	15.38	15.38	15.38	—	—
Newton . . .	27,556	—	—	—	—	—	—	—
Fitchburg . .	27,146	9	5	22 22	—	22.22	—	—
Taunton . . .	26,972	16	6	25.00	—	18.75	—	6.25
Gloucester . .	26,688	—	—	—	—	—	—	—
Waltham . . .	22,058	8	4	25.00	—	25.00	—	—
Quincy . . .	19,642	6	1	16.66	16.66	—	—	16.66
Pittsfield . .	18,802	1	0	—	—	—	—	—
Everett . . .	16,585	5	3	20.00	20.00	—	—	—
Northampton .	16,331	3	0	33.33	33.33	—	33.33	—
Newburyport .	14,073	5	0	—	20.00	—	—	—
Amesbury . .	10,920	2	0	—	—	—	—	—

Deaths reported 4,675: under five years of age 2,756; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fevers), 1,823, diarrhœal diseases 1,534, consumption 341, acute lung diseases 229, diphtheria and croup 104, typhoid fever 50, whooping-cough 33, cerebro-spinal meningitis 32, measles 25, scarlet fever 25, malarial fever 10, erysipelas 3, small-pox 2.

From whooping-cough New York 9, Philadelphia 7, Chicago 5, Pittsburgh 4, Washington 3, Brooklyn, Cincinnati, Cleveland, Milwaukee and Brookline 1 each. From cerebro-spinal meningitis New York and Chicago 8 each, Brooklyn and Cleveland 5 each, Philadelphia 2, Boston, Washington, Worcester and Brockton 1 each. From measles New York 7, Chicago 5, Philadelphia and Pittsburgh 4 each, Brooklyn 3, Lynn 2. From scarlet fever New York 6, Chicago 4, Philadelphia, Brooklyn, Boston, Milwaukee, Cambridge and Springfield 2 each, Worcester and Everett 1 each. From malarial fever Charleston 4, Brooklyn 3, Nashville 2, Cleveland 1. From small-pox Philadelphia 2.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 22, 1893, TO JULY 28, 1893.

Leave of absence for one month, to take effect when his services can be spared at Fort Wingate, New Mexico, is granted MAJOR LOUIS M. MAUS, surgeon, U. S. A.

Leave of absence for two months, to take effect on, or about, September 15, 1893, with permission to apply for an extension of one month, is granted FIRST-LIEUT. BENJAMIN L. TEN EYCK, assistant surgeon, U. S. A.

CAPTAIN WILLIAM B. DAVIS, assistant surgeon, is relieved from duty at Fort Sam Houston, Texas, and ordered to Fort Brown, Texas, for duty, relieving CAPTAIN GEORGE H. TORNEY, assistant surgeon.

CAPTAIN TORNEY, upon being relieved by CAPTAIN DAVIS, will proceed to and take station at Philadelphia, Pa., as attending surgeon and examiner of recruits at that place.

CAPTAIN LEONARD WOOD, assistant surgeon, is relieved from duty at Presidio of San Francisco, Cal., and ordered to Fort McPherson, Georgia, for duty.

CAPTAIN LOUIS W. CRAMPTON, assistant surgeon, is relieved from duty at Fort Spokane, Washington, and from temporary duty at Hdqrs., Dept. of Colorado, and ordered to Baltimore, Md., as attending surgeon and examiner of recruits, relieving CAPTAIN CHARLES B. EWING, assistant surgeon.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JULY 29, 1893.

H. J. BABIN, surgeon, to temporary duty at Naval Station, Fort Royal, S. C.

A. R. ALFRED, assistant surgeon, from the "Franklin" and to the "Minnesota."

J. M. MOORE, assistant surgeon, from Norfolk Hospital and to the "Franklin."

E. KERSHNER, medical inspector, to duty on board the U. S. S. "New York."

J. F. URIE, passed assistant surgeon, to duty on board U. S. S. "New York."

H. D. WILSON, assistant surgeon, from the "Minnesota" and to the "New York."

B. H. KIDDER, medical inspector; H. M. WELLS, medical director; FRANK ANDERSON, surgeon; CLEMENT BIDDLE, passed assistant surgeon, granted leave of absence.

RECENT DEATHS.

JUSTUS CARRIERE, M.D., has died in Strassburg, aged thirty-nine years. He was a grandson of Von Liebig and Professor of Zoölogy at Strassburg.

JOHN RAE, M.D., died in London, Eng., July 24th. He was a noted Arctic explorer and had charge of one of the expeditions of Sir John Franklin.

BOOKS AND PAMPHLETS RECEIVED.

Eczema Infantile. By B. Merrill Ricketts, M.D., of Cincinnati, O. Reprint. 1892.

College of Physicians and Surgeons, Richmond, Va., Announcement, Session of 1893-94.

Report of the Commissioner of Education for the Year 1889-90. Two volumes. Washington. 1893.

Laws Relating to Public Health Passed by the Ninth General Assembly of the State of Colorado. 1893.

Apparent and Actual Mortality. By F. D. Bullard, A.M., M.D., Los Angeles, Cal. Reprint. 1893.

Proceedings of the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons, Session, 1892.

Bacterial Poisons. By N. Gamaleïa, M.D., translated by E. P. Hurd, M.D. Physicians' Leisure Library. Detroit: George S. Davis. 1893.

Weekly Abstract of Sanitary Reports issued by the Supervising Surgeon-General, Marine-Hospital Service. Vol. VII. 1892. Washington. 1893.

The Indications for Amputation in Chronic Disease of the Larger Bones and Joints, with a Report of Seventeen Recent Cases, Including Three Successful Amputations at the Hip-joint. By J. E. Summers, Jr., M.D., Omaha, Neb. Reprint. 1893.

Lectures.

LECTURES ON SURGERY.[1]

BY DAVID W. CHEEVER, M.D.,
Professor of Surgery in Harvard University.

XII.

SPECIAL FRACTURES.

Fracture of the Greater Trochanter. — It happens occasionally that a person breaks off the greater trochanter. That can be easily diagnosticated, because the trochanter is so superficial that we can feel it through the tissues, grasp it and detect crepitation.

If it is a fracture of the trochanter alone, then we can apply treatment by the pelvic belt and gentle extension, and keep the parts quiet, and we are sure of union. If it is a fracture through the trochanter and the neck, we must treat it as a fracture high up, either in the straight position, or sometimes, if the fracture occurs below the trochanter minor, then in the double-inclined-plane position, which will favor the approximation of the fragments.

When the femur happens to be broken off just below the lesser trochanter, the upper fragment is strongly pulled upon by the psoas and iliacus muscles. The injury throws them into spasmodic contraction. They are ordinarily so strong as to move and evert the fragment. Everything is gone except this little piece, and they seize this and turn it, and tip it outwards. The shaft goes, usually, backwards; and no approximation of the fragments is possible, without great care. It is sometimes possible in the straight position to get this fragment down to match the shaft. If you are unable to do this, you must bring the lower fragment up. So that it is this class of fractures that is best treated on the double inclined plane. That is Nathan Smith's method of treating fractures of the thigh. Nowadays most fractures of the thigh are treated in the straight position. It is a noteworthy fact that Hippocrates treated fractures of the thigh in the straight position. People got dissatisfied with that; and two or three centuries ago they treated them all on the double inclined plane. Now they are almost all treated in the strictly horizontal position, once more.

When an old person falls and breaks the neck of the thigh bone completely off, you apply treatment; and the two questions always asked are: Is the patient going to be lame afterwards? You can safely say, "Yes." If they do well they will go on crutches a long while. If they do extremely well, they will be able to use a cane; but not be able to go without a cane, in all probability, for the rest of their lives. How long are they going to be confined? That you must put at a long period. The treatment that you apply to complete fracture of the neck would not cover more than six, or eight weeks; but the subsequent recovery of the powers of the old person always consumes months; and four to six months is perhaps none too long to say, before they get to moving about freely; and, of course, in a limited class of cases you would say, this person is so old and feeble, having already reached the age of eighty, or more perhaps, that it is hardly worth while to subject him to hard confinement and to apparatus; but the better way is to put the patient of that age upon a soft bed with springs and mattress so arranged and divided, that the bed can be tilted about on a double inclined plane; and subsequently get him on a lounge or chair of the same plane; and look after the bladder. Look after bed-sores. Keep up the nutrition without applying rigid apparatus. Be cautious about applying bandages firmly to the parts, for you run a great risk of so interfering with the circulation, that gangrene may be set up in the toes, to which they are extremely liable. In the first place, as you know, the venous circulation on the surface is extremely sluggish; the vessels are much dilated. In addition to that there may be atheroma of the arteries, which has reduced their calibre and elasticity so that the nutrition of the extreme parts of the foot is very poor. Such a limb will stand very little exposure to cold; will heal very slowly if it is injured; will slough very readily if it is compressed by a bandage or apparatus.

Fracture of the Femur. — It is this bone which gives rise to the greatest number of cases of shortening; conspicuously so because it supports the whole weight of the body, and because it is small; and also, especially, because the muscles that are attached around it are so powerful. When the femur breaks, shortening is immediate and considerable, and amounts frequently to an inch within the first few minutes. The deformity of the limb is very marked. The limb appears twisted out of place as well as helpless. The muscles above are irregular, and the deformity of outline is always considerable in fracture of the femur. Shortening and deformity. In addition to that if you draw the part down, you get crepitus; and a hinge or false joint in the middle of the thigh, for instance, is very conspicuous when you try to lift so large a portion of the body, so that the signs of broken femur are marked from the beginning.

In consequence of the power of these muscles shortening is very difficult to overcome by extension, and it frequently happens as the result of treatment that a considerable shortening remains. I think I said in the beginning of this course that recent measurements conducted in a number of museums of specimens of fracture of the femur, for instance, had proved that that bone especially, of the long bones, never united without shortening. This may be qualified a little perhaps in the case of the femur of children, where the break is usually transverse, and where union without shortening frequently occurs. In the adult shortening is the rule.

How much shortening is to be considered a fair result? Experience has proved that a patient will walk without perceptible limp with three-fourths of an inch shortening. He may need possibly another lift upon the sole and heel of the boot, but will not limp perceptibly with three-fourths of an inch shortening; for the pelvis tilts, and the whole side of the body accommodates itself to that shortening, without showing appreciable lameness. What is called a first-rate result in broken femur is one-fourth of an inch shortening. One-half inch does not make us ashamed. Three-fourths of an inch is not desirable; but still we may feel that the patient is not going to be lame, and conspicuous to himself and others. Beyond three-fourths of an inch marked lameness occurs; and instances are seen, frequently, in which either without treatment, or from unfortunate treatment, shortening results of from one to one and a half inches.

[1] These are unwritten lectures printed from the stenographer's reports. Verbal corrections are made in revision, but no rhetorical changes. They were delivered to the third and fourth classes as part of the regular course.

We may then in attending a fracture of this bone expect to be able to make an easy diagnosis; expect to have a case that will require treatment and a great deal of care to avoid shortening; and expect to have some shortening any way; and it is just as well, if anything is said upon the subject, for the patient and his friends to understand from the beginning, that no treatment can make a broken bone, of that character, as long as it was before. They must be made to understand that it shortens in mending. That is true; but there is another point true, for which we are responsible if we allow it to occur; and that is this, that after union has taken place to a pretty firm degree, if we allow the patient to go about too soon upon such a bone (as it bears such a weight and is so small), subsequent shortening will take place after union has occurred, from pushing up, shortening and shrinking of the soft callous union, which has not yet become bone. These are the cases that get out of bed at the end of six weeks; come out with a shortening of one-fourth of an inch, and are found to have increased the shortening by another one-fourth or one-half of an inch. It is remediable. The limb can be drawn down and the original length secured; but, unfortunately, unless we are on our guard, it is liable to occur, and very frequently it is not detected. Some shortening we are responsible for; and that is this kind; but the shortening that occurs in the beginning from the mending of the bone we are not responsible for, at all; and if the patient escapes with not over three-fourths of an inch shortening, he is not going to be essentially lame.

In all the ordinary fractures of the femur, anywhere from an inch or two above the popliteal space to an inch or two below the trochanters, the treatment is the same. In old times it was treatment in the straight position. Two or three centuries ago treatment vibrated back to the double inclined plane. Latterly, it has returned to the straight position; and it is the rule now that all fractures of this kind that I spoke of are treated in the horizontal position, and by extension and counter-extension. Since the use of the weight and pulley, which, by the way, is mentioned far back in the Middle Ages; and since the use of plaster extension, which was used in 1771; since the re-discovery and re-use, so to speak, of these two methods of treatment, the treatment of fracture of the femur has become very much simplified. When I was a student, it was customary to treat in the straight position; but the counter-extension was made by a perineal strap, and the extension by having a long splint pocketed in the belt; a foot-piece attached, movable by a screw; the foot being fastened to the foot-piece, and the screw being turned, the leg was extended. Then you pulled against the perineum entirely, to the great suffering and annoyance of the patient. Sores occurred. Many of the hospital apparatuses in those days had a padlock to prevent the patient from unbuckling his straps. The result was sloughing heels, sloughing perinei, and general discomfort. This did not occur in all cases; but it was liable to occur in a good many cases. Now, by the use of counter-extension, by raising the foot of the bed, and by the plaster-extension, we have overcome, practically, all these miseries, and have as good results as they had before. One surgeon, I think, has undertaken to treat fractures without extension, by the immediate application of plaster-of-Paris, but the results have not been very successful. You will find in "Hamilton's Surgery" a table of results of treatment by plaster, which is not very encouraging. The trouble is this: The limb is drawn down into place, the plaster-of-Paris applied, and at first all goes on well; but within a few days, when swelling has subsided and the leg begins to shrink, it absorbs more and more as time goes on. It soon lies like a loose substance within a case; and shortening of the fragments takes place inside the plaster, out of sight; and it may result in a union with considerable shortening.

Extension and counter-extension, on the whole, are the best methods. It is not a part of this course to show the application of apparatus. I only undertake to lay down the rules. Inasmuch as the fracture of the thigh-bone is one of the most serious we have to treat, it seems proper that these rules should be laid down very slowly and exactly with regard to the apparatus; and that I hope to do plainly now.

Counter-extension, in the first place, by raising the foot of the bed at least four inches. This is useless if you allow the patient a bolster and two or three pillows, because you immediately tip up his body and shoulders on a double inclined plane, and do not get the weight of the thorax and head pulling. The head should literally be lower than the heels, for the first few days until the muscles have got tired out, to make this treatment perfectly successful. Moreover, the bed must be very firm and hard. A bed made of wire or of soft springs is not suitable, unless there are put under it three or four cross-pieces of wood to prevent sagging of the apparatus; for the upper fragment may be tilted up by the sinking of the apparatus. Everything must be square, straight, horizontal and smooth, and the foot of the bed raised four inches; and if any pillow at all is allowed, an extremely thin one, and one only. The patient must necessarily be forced and instructed to lie on his back, which he is very reluctant to do. He suffers a good deal; has backache and wants to turn; and if he turns he disturbs the fragments. Extension is made by long strips of plaster, water-proof plaster, spread on heavy cloth, which will not soften up under the influence of perspiration or accidental wetting — two long strips, which are carried up to the end of the lower fragment, always above the knee-joint, and then surrounded with circular, or spiral strips enough to keep them in place. Fasten this around a cross-stretcher, to a cord, which runs over a pulley, and to which is attached a weight. It is of no consequence what the weight is made of, as long as it is a weight of a certain definite amount. A strong man, in the early stages, requires twelve or fifteen pounds' weight to pull down the femoral muscles. Ten to fifteen pounds is a common weight, and five to six for a child. Five to ten for a child or young adult; ten to sixteen for a fully developed and strong person. We must be guided a little by the size of the thigh of the individual, by the power of the muscles, by his weight. Weight is to be put on until the thigh is brought down to a length equal to the other, as determined by careful and repeated measurements. We may not accomplish this the first thing, but ought to accomplish it in twenty-four to seventy-two hours. It is found that, after a few days, the muscles get so tired that they will give out considerably, and the length of the limb can be maintained with a diminished weight. It is questionable, I think, whether it is desirable to have sixteen pounds pulling for six weeks upon a leg. It is conceivable that we may separate the fragments,

may delay union in that way. We should allow them some chance to come together, but at first great power has got to be used. When the muscles get tired, we take off several pounds, and go down from sixteen to twelve, or from twelve to nine or ten, according to the amount which was first used.

You must also be extremely careful that friction about the bedstead, friction of the foot pressing against some rod or cross-piece, friction of the heel pressing against the edge of the mattress does not defeat your object in getting perfect extension. It is important that the heel should swing free from the bed, and be separated by a pad in the hollow of the ankle, so that the heel may lie off and not touch. The heel is the part above all others that does not bear pressure well. In health it is almost wanting in sensitiveness, as you know; but pressed upon, it becomes as tender and aching as a diseased bone; and when it once sloughs, it of course being of a thick and semifibrous and feeble tissue, it repairs very slowly; makes a disastrous ulcer; which is a long while in skinning over, so that the patient can move about; so that ulcerations over the end of the os calcis are to be dreaded. You can see in the skeleton how much of a protuberance this bone makes, and the importance of having this lifted up by a pad.

The next point is to prevent the lower fragment and the knee from rolling out, which they will do if not supported; to avoid eversion; to keep the great toe on an exact line with the inner border of the patella; and in order to do that we have got to immobilize the places where motion can occur.

What are these? The hip-joint, knee-joint, to a less degree the ankle-joint. These three joints must be immobilized; and the foot inverted; the toe kept straight up, and on a line with the inner border of the patella. We accomplish this best by the long outside splint. This is a relic of the old period. It must extend down below the foot, and must be placed on the outside of the limb and fastened so that the limb shall be inverted a little and not allowed to turn out. It is a part of the old apparatus, but does not fulfil the same office as in the old apparatus. In the old apparatus it was the means of carrying on the extension. In the new apparatus it is simply to prevent rotation; and I wish to insist very strongly upon that point; for many people make the mistake of thinking that this is a long board which lies down beside the limb in the bed as a splint, which is keeping up the extension, and keeping up the length of the limb. It has nothing to do with it. It prevents rotation, and prevents motion of the joints, that is all. In order that it may keep a perfectly vertical position it is useful to have a cross-piece attached to it, so that we have a long piece coming down, and a piece crossing below, but not touching the foot, to hold the splint upright on its edge. We have to have a belt and pocket to confine it around the body, like a swathe. It can be carried up to the arm-pit, and fastened around the body.

So far, then, we have drawn the leg down, and held it by weight; have prevented rotation, and motion of these three joints. It is also necessary to compress the muscles immediately around the fragments of the broken bone; and this is done by means of four narrow pieces of wood, like shingles, placed above and below and on either side of the thigh, to compress the muscles which are about the fracture. No bandage should be put on the thigh under the splints. That cannot be too strongly insisted upon. The splints should be properly padded. They should be fastened on with three or four inch wide webbing straps and buckles. In that way you can watch the circulation of the part; see the amount of swelling; tighten or loosen at any time; and the object of these splints is only to keep the parts still. When this is done, that is all. You have got the length by pulley from the foot; counter-extension by the weight of the body; you have got position; compressed the muscles, and held the parts in position; and after two or three days you may begin to take off weight.

How long should this be kept on? About six weeks in an adult. Much less than that, for a broken femur, in a child. At the end of six weeks, take off the entire apparatus; strip the patient completely; let down the foot; measure to see the length; and gently lifting the ankle and foot, and putting the hand upon the trochanter, rotate to see whether you have union. If you have union, and fair length of the limb, it is very satisfactory; but this union is of the softest possible character; will not bear the weight of the limb; and certainly no moving about. Now extension by the weight and pulley may, perhaps, be given up, as long as the patient remains in bed; but in place of that put on a plaster-of-Paris, or dextrine, or starch, or some firm bandage, which extends from the toes to the groin, and compresses the parts evenly, and holds the united femur in its proper position. After that the patient should lie in bed two weeks longer; then sitting up may be allowed; moving around with crutches without putting the weight of the foot on the ground. Still keep on a light plaster or dextrine bandage for three or four weeks more; and if it shrinks and the leg wastes, as it usually does, it can be cut open, and fastened with external straps so as to make a snug evenly-moulded case for the limb. At the end of three months, it is safe to let the patient put weight upon the limb; but it is six months before he can lift on it and shovel, as with the other leg.

In the upper third of the femur a modification of this treatment is required, on account of the fact that the psoas and iliacus muscles attached to the inner trochanter seize upon the upper fragment and tip it up and out. In order to make the lower fragment match it, we must put the leg in the Nathan Smith splint.

When we come to the breaks of the lower part of the femur we meet a new difficulty. The two heads of the gastrocnemius muscle are strongly inserted into the posterior part of the femur. The moment the shaft is broken off, they pull on the two condyles and draw the lower fragment directly back into the popliteal space; and occasionally make a laceration of the vein, or an abscess, if not properly treated. Now this requires extension in the same position, but, in addition, a padded ham-splint to go in the popliteal space, to force up this fragment, while extension is kept up in the ordinary way. The result of treating the fracture in this way is generally good.

In all these fractures of the femur we are obliged to keep the knee-joint so long stiff and motionless, in the course of the treatment, that fibrous anchylosis is always the result; and the patient, at the end of three months, goes about with a stiff knee, which he is some time in overcoming. This will, with a little care, cure itself; does not need violent pumping, or friction, or massage. It is very prone to inflammation. I

have seen, after fractures, when the limb had got strong and the patient was going about, have seen him put back by injudicious movements of the joint, which brought on synovial accumulation. The patient will overcome the stiffness himself, by natural means. Encourage him to sit on the edge of a chair, and lower his foot-stool an inch a day.

Fracture of the Patella. — The knee-pan almost always breaks transversely, and frequently the lower fragment breaks into two pieces. Unfortunately the fragments are very seldom exactly alike in size, and these peculiarities explain why it is so difficult to get good union between the fragments. If we had a perfectly square break across the middle of the patella we should be able to hold the fragments more firmly and evenly and get better union, but we almost always have to deal with one large fragment and one small fragment, and frequently with one large fragment and two small irregular fragments. You will see at once how much these increase the difficulty of coaptating the parts or of making them unite. This being a sesamoid bone, developed in the tendon, has no great active or reparative power, and is incapable of uniting by bone, unless provoked by some foreign substance. A simple fracture, by wiring, will unite by bone; but if left to the processes of nature it will not unite by bone. The lower fragment is fixed, tied to the tubercle of the tibia by the ligamentum patellæ. The upper fragment is movable, fastened to the quadriceps femoris, and pulled up violently by the contraction of the rectus muscle. This separation usually takes place at once; and when we see a patient with a broken knee-pan, we generally find that considerable separation already exists. If untreated, and the patient is allowed to go about, this increases more and more, until, in one extreme case I saw at the hospital, of a sailor, there were between four and five inches between the two pieces of the patella. You may remember that the vasti muscles are inserted into the sides of the tibia and fibula by very strong extensor tendons, which are flat and fascia-like and firm. They form a sling which lifts the leg, after the attachment of the rectus to the patella is broken off; and they are the salvation of the patient who has broken the patella. This sling becomes very much increased in strength; grasps the knee as the two hands would; and in that way the foot is held with considerable safety, and moves with considerable force.

Fortunately it happens after fracture of the patella that, although union is not by bone, yet a simple separation of the fragments with membranous union, is just about as useful as union by bone. Hamilton lays down the law that separation up to an inch gives as good a limb as close apposition of the fragments, with regard to future utility. In this case the patient is not only dependent upon the membranous union of his broken knee-pan, but also upon the sling of the two vasti extensors, which become enormously thickened.

On the other hand, we have the means, if we succeed in the operation, of provoking bony union by cutting down on the fracture, converting the simple into a compound fracture, washing out antiseptically, drilling the bones, wiring, forcing the wire to hold them in contact a good many weeks, finally untwisting and removing the wire, and then eventually healing up the part, if fortunate, without sepsis, or destructive suppuration in the joint. Whether the good to be gained by this procedure is worth the risk it entails, must be left with every patient and surgeon to judge for themselves. I think an important point to be borne in mind is this, that we should never lose sight of the constitution, age and vitality of the patient when we are considering the propriety of subjecting them to any operation of this kind. We have got, on the one hand, the certainty of ligamentous union with fair result to the patient, if he is well taken care of; on the other hand, a better and firmer union, if the patient undergoes a certain risk. Will he keep up nutrition; is he likely to go into the condition of delirium tremens; or to sink in any other way? On the other hand, if we think it more prudent to use the old method, he is pretty sure of getting a fair leg, any way.

The principles of treatment are to treat the leg in the extended position. The patient must not only lie flat upon the bed, but the leg and foot must be raised up from the bed at a slight incline, in order to relax thoroughly the rectus muscle. The rectus has two heads. One is fastened to the pelvis just above the anterior inferior spine. We cannot relax that head unless we bend the femur on the trunk, and that is the object of lifting the foot a little higher than the bed. The fragments may be drawn together by a plaster, or figure-of-8 bandage; and finally a plaster-of-Paris bandage may be applied to the whole limb; an opening being left through which we can watch the fragments. This treatment cannot be applied at once. The fracture is a break into the knee-joint; and the injury, in consequence, is pouring out blood, and there is leaking into the joint. There is also a large effusion from the synovial sac, and we have a state of acute synovitis and ecchymosis; therefore we cannot apply this treatment, at first. You find, at first, the leg cool and the fragments separated, and you say "we can treat this at once," but the next day, you find the synovial sac full of fluid; the fragments wholly separated; the parts extremely tender; the surface black and blue, and risk of destructive suppuration in the joint, if you persist in harsh treatment.

The early treatment of fracture of the patella must be, in almost any case, to put the limb on a ham-splint; place it on pillows on a soft bed; to treat the synovitis for the first few days, sometimes by evaporating lotions, sometimes by cold, sometimes by leeches; and, after this, by more stringent treatment. I suppose this treatment would not apply to the case where you were to cut down and wire it.

The trouble about these fragments is not so much that we cannot draw them together, as that they tilt. Any pressure on the edges tilts up the middle; and the broken surfaces, instead of lying in contact perfectly, rise up, and it is difficult to control them. Malgaigne's hooks are, no doubt, an excellent means of holding the fragments perfectly in apposition. The plaster; the figure-of-8 bandage; the method known as Sauborn's, which consists in putting two rollers above and below the patella and applying plaster up and down the limb, and twisting it with a stick over the rollers, are also sometimes very good methods of keeping the fragments together. I think we should be reasonably satisfied if we can hold them together so nearly that no more than a quill or pencil can be laid between the fragments while treatment is going on; and if the limb is immobilized, you will get good union. That union is liable to stretch, at any time, for four or five months. Hamilton says, after five months, union is strong enough

to resist anything. Consequently, in the first place, the primary treatment must be very long, three months, at least; and subsequently to that, the patient must wear a ham-splint, with a joint, for two or three months more. I mean a ham-splint so made that, although it has a hinge in the back, it can only bend to a slight degree, and brings up by a catch, so that the patient cannot possibly drop.

What is the consequence if he gets an accidental early bending or fall? Re-separation of the fragments. This happens very often indeed. The patient is going about the wards and begins to feel pretty strong; his crutch slips, and that leg gives out at once; and the fragments are more widely separated than ever. Unfortunately, re-union is much slower and poorer and more imperfect than in the first place; and it is a great disaster to happen, in addition to the loss of time, because he never gets so good a leg as before.

Patient treatment for months. Care afterwards for many months later. Wearing this ham-splint for more than five or six months, perhaps; and finally, the patient will get a very useful limb. It is an annoying accident. For the size of the bone and of the injury, it entails more delay and loss of utility of the limb, than the fractures of a great many larger bones.

Fracture of the Tibia. — The tibia never breaks alone, I think, except in consequence of a direct blow. When it is broken alone, the fibula is a splint for it and holds it in place.

The treatment is very simple. A plaster can be put on; and the fibula will hold it in place. There cannot be shortening; and union will take place in four weeks.

Fracture of the Fibula. — When the fibula is broken alone, it gives way about two inches above the ankle-joint, as a rule, where the bone becomes quite thin. It always occurs by the same sort of violence that gives what we call a sprained ankle. When a person has a sprained ankle he steps off of some height and turns the toes in, or the foot into the position of varus. The ordinary sprained ankle consists in tearing some of the ligamentous fibres, and loosening the joint. The same sort of accident, in some patients causes fracture of the fibula. Unfortunately fracture of the fibula one and a half or two inches above the joint is often mistaken for a sprained ankle; and so treated, with disastrous results. The sprained ankle gets better at the end of ten days; but at the end of ten days the broken fibula is just as bad and painful as ever. Some one then makes a more careful examination, and detects the fracture. It is detected by placing the two thumbs on the fibula, and springing the bone up and down, and comparing it with the other leg. In the limb where the fibula is broken you have perhaps crepitus and localized pain and tenderness; a little irregularity of the surface of the bone; and it springs up and down, under the thumb, like two pieces of whalebone. People can walk with this fracture. Booth shot Mr. Lincoln and went off with this fracture, and rode two nights; and if he had not had to go through other hardships, probably he would have done very well. People can go about with that fracture, but it will not get well.

Dupuytren's splint is a good one. Apply on the inside of the limb and bandage over. Simple plaster-of-Paris, put on, is sufficient; and with the plaster on, the patient can get on crutches, and move about very soon without putting weight on the limb.

The essential point in regard to this injury consists in its diagnosis. Its treatment is easy, and its cure certain.

Fracture of the Tibia and Fibula. — Fracture of both bones of the leg almost never takes place on the same level. One is above or below the other. As a rule, the tibia is low down and the fibula higher up. Moreover, fractures of the tibia anywhere between its upper and lower thirds are almost always oblique from before backwards and upwards, so that the upper fragment has a sharp shell of bone which lifts up against the skin. If the fibula is also broken, the gastrocnemius muscle acts as a bow-string on a broken bow, and forces both of the bones upwards against the skin and out of line. The difficulty in fracture of both bones consists in keeping both these oblique fractures down in place. The skin is extremely thin, and liable to be irritated and to slough unless very carefully treated. Great shortening does not take place in fractures of the lower leg. It is usually not noticed by the patient afterwards; and does not occur to any great degree. Moderate shortening, perhaps, always occurs. It is best detected by setting the patient square on a chair, with the knees at right-angles; feet naked, and toes carefully placed together. In that position we can detect whether one knee is on a higher level than the other.

The difficulty in treatment is principally in getting this oblique fragment of the tibia down in place and keeping it there. Sometimes we can do this with gentle compression and bandage; sometimes by a lateral splint holding the parts. Sometimes we are obliged to raise the heel and the foot in order to draw the lower fragment up into contact with the obstinately riding-up upper sharp piece, which threatens to break through the skin of the leg.

There do exist, occasionally, very irregular and oblique fractures of the tibia which have a split running up the bone besides, in a triangular direction. These are extremely troublesome. They are among the most painful that exist; and the patient suffers from neuralgic pain later. You must warn the patient that such a fracture will repair, in time; but that he will have lameness and pain for a good while afterwards.

Four to six weeks for fracture of both bones of the lower leg; and plaster after that put on for some time, and crutches. Weight put on the feet slowly afterwards.

Pott's Fracture. — The most troublesome fracture of both bones of the lower leg is Pott's fracture; described by Mr. Pott, who was himself a victim of the accident and who devised means of treating it. It consists of fracture of the fibula at the classical place, one to one and a half inches above the joint; rupture of the internal lateral ligament alone, or rupture of the internal lateral ligament with breaking off of the tip of the inner malleolus as well. So that the tibia projects inwards and the foot is dislocated outwards at an angle from the leg.

Now it is very plain what we want to do in order to get this back into place, and if we can accomplish this it can be successfully treated. The dislocation is to be reduced by carrying the foot in. The foot is to be set at a right-angle to the leg so that the lower surface of the foot is at a right-angle with the tibia; the great toe on a line with the inner border of the patella. It is desirable in setting this fracture with

dislocation outwards, to carry the great toe a little further inwards than the inner border of the patella; and instead of having the foot dislocated outwards, have it turn a little inwards, in the opposite direction, as if the patient had a commencing varus. We do not expect to maintain that position always; but we exaggerate a little in order to retain enough of the right position when the foot comes out of the splint. There are some cases of this fracture where the parts will not stay in place; where dislocation backwards occurs; where the astragalus pushes out in front of the tibia; and it is in this class of cases that we are to do tenotomy of the tendo Achillis. Cut that, and the whole thing is in place at once. The proper position is with the great toe a little further in than the inner border of the patella, and the sole of the foot strictly at right angles with the limb. It is best confined with a plaster-of-Paris bandage. The dorsum of the foot and the front of the leg should be left open, so that we can see the position and guard against swelling.

This is a tedious fracture to treat. It takes eight weeks; and you must warn the patient that he will be extremely fortunate if he gets through without stiffness of the ankle-joint, since he has had dislocation and fracture into the joint.

I cannot too strongly call your attention to the fact that in treating all fractures of the lower leg it is of the last importance that the foot should be kept up at right angles to the leg. If we allow the foot to droop, the result is that the bones are so much shortened that the patient walks ever afterward in the position of talipes equinus, on the ball of the foot; and cannot get the heel down to the ground; whereas if from the first he is treated in the rectangular position, subsequently there is no trouble.

Fracture of the Os Calcis. — Fracture of the os calcis is rare. It happens from the person's stepping off a height and lighting on the arch of the foot. If the os calcis is broken off, you can see what must happen. The tendo Achillis, all the strong calf muscles of the leg being inserted there, pulls the large fragment up on the back of the leg.

In order to approximate the fragments of the bone, we have got to put the leg strictly in the equinus position; drawing the heel up as far as possible with a strap, in order to get the fragments together.

Union generally takes place and the result is fairly good.

Fractures of the Tarsus. — Fractures of the tarsus are almost always compound, the result of crushing; or if not, they do not occasion much displacement, and readily heal.

Fractures of the Metatarsal Bones. — Fractures of the metatarsal bones, on the other hand, are frequently produced as simple fractures by the fall of timber on the foot; and give rise to the same sort of displacements and deformities that occur in the metacarpal bones of the hand. Fracture of the metatarsal bones corresponds very much to the fracture of the metacarpal bones. The bones should be held nicely in splints and carefully padded. If subsequent irregularity in the union occurs; and there is any knob or projection above, or below, or at the side of the metacarpal bones, the patient is sure to feel it. Careful attention must be given to the setting and adjustment of bones; and so also with the toes, as with the fingers.

The only point of any importance is this; when you have to treat fractures of the metatarsal bones, the foot does much better upon a large splint shaped like the leather sole of a shoe than upon any narrow splint, fitted on any one individual toe; you want a large wooden sole; adjust it with other splints, plaster or what not, in order to compress the parts into shape.

TUBERCULOUS PLEURISY.[1]

The Shattuck Lecture for 1893.

by WILLIAM OSLER, M.D.,
Professor of Medicine in Johns Hopkins Hospital, Baltimore.

(Concluded from No. 5, p. 114.)

Case XV. Pleuro-peritoneal tuberculosis in chronic pulmonary tuberculosis (abstract).

D. W., aged eighteen, colored, admitted November 21, 1889, complaining of cough, fever, and pain in the abdomen. About two months before admission he was wrecked and exposed in a boat for twenty-four hours. He dates his illness from this time. He can give no details as to his family history. He had syphilis in the spring of 1889. The patient was a medium-sized, fairly well nourished young man, and at the first examination there were signs of disease at both apices, most marked at the right. There was high fever, and very rapid extension of the pulmonary disease, a large excavation developing within a few weeks at the top of the right lung. There were friction sounds heard in the axillary regions, and particularly marked on the left side. The abdomen was full and distended, sometimes painful, and he had diarrhœa. The patient did not improve in any way, but the fever persisted, and he became greatly emaciated, progressively weaker, and died January 25th.

Autopsy. Anterior mediastinal glands caseous. Both lungs were bound down by firm adhesions. The pleural membranes thickened; the costal layer, easily stripped off, was covered with fibrinous exudate, beneath which were numerous tubercles and caseous masses. On the pulmonary pleura there were numerous tubercles and flat caseous areas. Both lungs showed large cavities at the apices, numerous caseous areas, and miliary tubercles disseminated and in groups.

There was only a small amount of clear fluid in the peritoneum; the intestines were agglutinated, and on the peritoneal surface many groups of tubercles and flat caseous masses. The mesenteric glands were greatly enlarged and caseous. There were numerous tuberculous ulcers throughout the entire intestine, beginning just beyond the pylorus and extending to the rectum. There was tuberculous ulceration of the bladder.

We have many opportunites of seeing slight extension of the disease through the diaphragm, either downward from the pleura, or more often from the peritoneum into one or other pleura. In the following case there was extension from the right pleura to the under surface of the diaphragm, and to the peritoneum covering the liver.

Case XVI. Pulmonary tuberculosis; chronic tuberculous pleurisy; tuberculous peri-hepatitis; circumscribed tuberculous peritonitis (abstract).

A. F., female, aged nineteen, admitted June 6, 1892, complaining of shortness of breath. She had been in failing health ever since the birth of her child March

[1] Delivered before the Massachusetts Medical Society, June 13, 1893.

19, 1892, when she had a severe cough, which has persisted ever since. She was pale, emaciated; respirations 44; pulse 148. There was deficient expansion at the right apex and signs of commencing cavity. She was in hospital during July and August, and signs of extensive pleurisy developed on the right side, for which she was aspirated and seven and a half litres of serous fluid removed. She had marked hectic fever. The pleural symptoms were complicated by the presence of a large abscess in Scarpa's triangle, which was opened and drained. She died September 12th of hæmoptysis.

Autopsy. In the anterior mediastinum there were miliary tubercles and caseous masses; both pleural sacs obliterated. The parietal layer of the pericardium, adherent to the pleura, presented numerous fresh gelatinous-looking tubercles. The lungs and visceral pleura on the left side removed together. The layers were greatly thickened, and were covered with a hæmorrhagic, rough exudate one to two millimetres in thickness. The right pleural sac also obliterated, and the membranes united by old adhesions; no acute pleurisy. Throughout the left lung there were several cavities; one at the apex, nine centimetres, and in this there was a ruptured aneurismal dilatation of a branch of the pulmonary artery.

The under surface of the diaphragm on the right side was adherent strongly to the liver and covered with numerous gray tubercules, which were also present in numbers on the upper surface of the liver, and there were numerous hæmorrhages about them.

There was tuberculous disease of the lumbar vertebræ. The mesenteric glands were enlarged, but not caseous. There were tuberculous ulcers in the ileum.

Attention has often been called to the frequent association of tuberculous pericarditis with tuberculous pleurisy. Thus of seventeen cases which I recently described[3] there was combined disease of these membranes in Cases IV, VII and XV. In the following case the pericarditis in all probability followed the chronic tuberculous pleurisy.

Case XVII. Chronic tuberculous pleurisy on the left side; acute tuberculous pericarditis and pleuritis dextra.

John P., aged thirty-eight years, admitted August 18th, with swelling of the legs and dyspnœa. The family history is good. He has been, as a rule, healthy, though in his childhood and youth he had many of the infectious diseases. He has been a moderate drinker. He denies syphilis. The present illness began about two weeks ago with pain in the left shoulder and about the heart. Feet began to swell ten days ago, and he has had cough and shortness of breath for about the same length of time. He has had no nausea; his appetite has been fairly good. Within the past few days he has become much worse.

On admission the patient had intense orthopnœa; pulse 130, but moderately full. He had a distressing cough, with clear watery expectoration. There was great œdema of the lower extremities and of the scrotum. The finger-tips and mucous membranes were bluish in color. In the examination of the heart at the time no murmur could be detected, but the second sound was accentuated at the pulmonary cartilage.

On the following morning the patient was quiet; respirations 28 to the minute; pulse 84, the beats irregular both in rhythm and force, the volume fair, and tension not diminished.

Thorax apparently symmetrical, but the manubrium very prominent, expansion equal. In front, resonance on both sides good, though on the left side flatness begins at the fifth rib midway between the nipple and axillary line, and the dulness seems here to be somewhat movable. There are numerous sibilant and sonorous râles to be heard in front. Passing down the left side and into the axilla, the breath sounds become more feeble and fine moist râles are heard. Pitch of resonance of the extreme left base is higher than at the right, and the vocal resonance is somewhat diminished.

On auscultation there are numerous coarse and medium fine râles to be heard at both bases. At the extreme left base the respiratory murmur is almost absent.

Heart: Point of maximum impulse difficult to localize; slight general heaving over the whole præcordial area; relative dulness begins above at second rib and extends well to the right of the sternum. The prominence above noted is just at the junction of the manubrium and gladiolus, and just at this point there is dulness over a very limited area. Relative dulness extends outward to a point nearly five centimetres outside the nipple. The heart-sounds are heard with the greatest intensity at the fifth space a little inside of the nipple line. There the first sound is full and booming; the second not so loud. Passing inward toward the sternum the sounds become associated with a superficial, soft, squeaking sound, diastolic in time, heard loudest over the mid-sternum, and pericardial in character. This is heard faintly all over the base. The murmur is more distinct in forced expiration than during inspiration. The second pulmonic is a trifle louder than the second aortic sound. The radial pulses are equal in volume, and there is no pulsation in the upper sternal notch; there is no tracheal tugging. The examination of the abdominal organs is negative. The urine is yellow-colored, acid, specific gravity 1024, distinct trace of albumin; several hyaline casts were found. Throughout the 20th and 21st the patient remained in much the same condition. On the 22d there was a slight rise in temperature to 100.5°; the pulse varied greatly in rate and character; at noon was slow, regular and full, from 70 to 90 per minute, and again was as rapid as 140. The patient, in many respects, was better. The œdema of the legs had disappeared. The urine had increased in quantity. On the 19th only 180 c. c., and on the 20th 350 c. c. had been passed. On the 21st and 22d the amounts were 700 and 1100 c. c.

August 23d. The temperature has been between 97° and 98°; at the morning visit the pulse was 148, regular in force and rhythm; the respirations 32. The patient was lying quietly on left side. The physical signs practically those noted above, with the exception that there is an extension of the œdema at the base of the lung. The patient died suddenly at 4.30 P. M. to-day.

Autopsy (by Dr. Flexner). Large, muscular man; moderate œdema of the legs and of the subcutaneous tissue of the trunk. Fat well retained, both beneath the skin and in omentum and mesentery.

Pericardium is adherent to the left pleura; the sac thickened and contains a considerable amount of clear serum. Both layers are covered with a thick fibrous

[3] American Journal of the Medical Sciences, January, 1893.

deposit, looking like a hairy coat. The thickness of the pericardium over the heart is 3 mm. When incised the thickened layer is grayish in color, with many opaque or yellowish points scattered here and there, often continuous, and having the well-recognized characteristics of tubercles of this membrane. The heart was greatly enlarged. The valves were normal. The thickness of the left ventricle was 17 mm.; length of ventricle, 8.5 cm.; mitral orifice, 10.5 cm. in circumference. Thickness of right ventricle, 6 mm. Tricuspid orifice, 12 cm. in circumference. The walls of the auricular appendix are almost completely converted into a grayish-white material with only a thin internal film which appears like muscle. In the endocardium of the left ventricle are numerous ecchymoses. There are also a few small ones on the right ventricle and in the auricles, and on the endocardium of the auricles are a few small, round, whitish miliary tubercles.

The left pleura is much thickened; parietal and costal layers adherent in places, but where not in actual contact there is clear serum between them. The costal pleura strips up with difficulty, and is very hard and cuts like cartilage. The diaphragmatic pleura is especially thickened, and on section it is seen to be composed of a dense, almost cartilaginous, grayish tissue, containing yellow, opaque, caseous masses. The apex of the left lung is retracted, hard to the touch, and on section contains a dense, deeply pigmented connective-tissue, and old areas of caseation; no calcification. There are a few small foci of miliary tubercles, and scattered fibrous tubercles elsewhere in the lung.

The right lung is voluminous, and in the greater part of its extent free from adhesions, but the pleural surfaces present numerous grayish-white elevated masses, single and conglomerate, which can be scraped off with difficulty. The costal pleura present similar tubercles. About these there are, here and there, fresh fibrin. In the apex, the upper lobe presents a few foci of fibrous miliary tubercles.

The spleen contains a few scattered tubercles. Nothing of note in the abdominal viscera; the intestines did not present tubercles.

III. GENERAL PATHOLOGY.

The pathology of serous membrane tuberculosis turns on the avenues of infection rather than upon any special peculiarity in the lesions. Miliary tubercles, with inflammatory exudate, serous or hæmorrhagic; acute, rapidly caseating and ulcerative processes with necrosis and suppuration; a chronic fibro-tubercle, nodular and diffuse, are here met with as in the lungs and elsewhere — and the chief interest relates to the

Avenues of Infection.

(1) Doubtless a great majority of all cases of tuberculous pleurisy arise from direct infection from the lung, a tuberculous focus invading the membrane, as may be seen any day in the autopsy-room. Rapid development of a fibrinous exudate at the spot controls the extension, blocking the lines of transmission and limiting the process. Though directly excited by contiguity, the pleurisy is not always associated with an eruption of miliary granules, but may be simple. There would appear sometimes to be an antagonism between the pleural and pulmonary disease, and it will have been noted in several of the post-mortems of the cases previously given that very extensive affection of the pleura occurs with very slight or even without any disease of the lung on the side involved. The possibility of infection of the pleura by contact from tuberculosis of the mediastinum, tuberculous abscess of this part, and, indeed, from cold abscess of the thoracic wall, must also be considered.

(2) Infection through the lymphatics. It was one of the great generalizations of Bichat when he spoke of the serous membranes as "grands reservoirs," a truth demonstrated by the intimate connection known to exist between these surfaces and the subjacent lymph vessels. The beautiful investigations of Klein, Arnold, and others, have taught us the complicated anatomy of the lymph apparatus of the lungs and pleura, and also the course of the lymph streams, so that it is not difficult to understand how the serous membrane may be affected. We all inhale tubercle bacilli, perhaps not daily, but dwellers in cities and workers in hospital wards certainly inhale them very frequently, attached to the dust particles, the fate of which in the respiratory system is well known. A certain proportion in the trachea and bronchi are dealt with by the leucocytes, and are brushed by the cilia to the larynx: the sweepings of the night appear in the dark morning expectoration. Many of the particles reach the alveoli, and are here also in part attacked by the large desquamating cells of the alveolar epithelium, an important function of which is, no doubt, to help in the general scavenger work which goes on incessantly in the lungs. But a considerable number escape the phagocytes of the bronchial tree and of the alveoli, and pass through the openings in the latter into the alveolar stroma. Those from the air-cells enter the deeper lymph channels which surround the bronchi, and in their course pass through many of the lymph nodes, at every one of which they are attacked, and many of the particles remain fixed in the cells of the follicular cords or permanently imbedded in the stroma. Those particles which reach the more superficial alveoli pass into the wide sub-pleural lymph streams. Here, too, at the periphery of the lobules, as may be seen in the lung of any adult, many of the dust particles are picked out and fixed in the perilobular tissue, so that often the lobules are accurately mapped out by a line of black particles. Ultimately, a certain number reach the bronchial glands, which become gradually in all of us, as the years pass, more and more deeply pigmented. The tubercle bacilli attached to the dust particles follow these routes, and their fate depends very much upon the local conditions, which, happily for the majority of us, are not favorable to their growth. It is interesting to note, however, with reference to the mode of infection in tuberculosis, the large proportion of individuals in whose *dust-filters*, as the lymph nodes of the respiratory system may be called, tubercle bacilli effect a lodgement. Indeed, there have been important observations within the past few years to show that the bacilli may be present (without having caused any mischief) in apparently healthy lymph glands. There is direct communication between the sub-pleural lymphatics and the sac of the pleura, so that it is possible to conceive of a direct entrance of the bacilli in that way. More commonly, however, the disease spreads from a sub-pleural nodule or a lymph node in which the bacilli have grown. The wide and free anastamoses which have been demonstrated to exist in the lymph vessels of the pulmonary pleura favor the rapid diffusion of the virus under suitable conditions. Possibly, too, in

some instances, direct infection may take place from the bronchial and tracheal lymph glands. Under all these circumstances it is the visceral layer of the pleura which is involved. The lymphatics of the parietal pleura have wide and extensive communications, discharging as they do partly into the lymph glands along the vertebræ, and partly in the anterior mediastinal group, along the internal mammary artery. Infection may come from the lymphatic glands in the neck, particularly the supra-clavicular, which communicate freely with those of the axilla and of the sub-maxilla. Infection of the pleura in tuberculosis of the glands in these two groups, has been frequently noted, and has been made the subject of a special essay by Hernandez.

In rare instances the disease may extend to the pleura from tuberculous caries of the bones in the neighborhood. An interesting instance of this was reported to the Johns Hopkins Hospital Medical Society by Dr. Flexner last winter. A colored man, aged twenty-four, had a sinus in the neck which led to an erosion, involving the outer third of the right clavicle. The supra-clavicular glands in the neighborhood were involved, particularly the group between the clavicle and the upper border of the pleura, which were enlarged and caseous. The right costal pleura was greatly thickened, firmly united to the visceral layer, except on the diaphragmatic surface on which there was a cavity the size of an orange filled with a sero-fibrinous exudate.

And lastly, the pleura may be infected through the wide communications which exist between the lymphatics of the peritoneum and those of the diaphragmatic pleura, and the lymphatics of the mediastinum.

IV. DIAGNOSIS.

A disease presenting clinical variations so extreme as those which I have attempted to portray must necessarily offer at times serious difficulties in its detection. At the outset, it may be frankly acknowledged that often in cases of acute sero-fibrinous pleurisy, coming on with chills and fever and gradual effusion, we have not the data upon which to base a diagnosis. Neither the appearance of the individual, the family history, the onset, the course, or the character of the exudate may be in any way suggestive. On the one hand, there can be no question that many instances, as in Case I, so often referred to, occur in robust individuals of previous good health, with all the characters of pleurisy *a frigore;* and yet the subsequent history may point very clearly to the fact that the process has been from the outset tuberculous. On the other hand, the view which has of late found so much favor, that a large proportion of all acute pleurisies are tuberculous, is certainly unfounded, as shown by the post-mortem notes already referred to, in which non-tuberculous pleurisy of one form or another was present in two-thirds of an unselected series of cases from medical wards. I have already called attention to the points to be specially investigated; the antecedents, family and personal, the careful inspection of the groups of lymph glands contiguous to the pleura, the repeated examination of the expectoration, which may contain tubercle bacilli from even a very small focus of softening tubercle in communication with the bronchus. On more than one occasion it has happened that their discovery after repeated examination has cleared up the nature of an obscure pleurisy; and it is worth noting that in Case I the only spot of softening from which the tubercle bacilli could have come in any numbers did not exceed the size of a hazelnut, and was in the lung on the side opposite to that of the effusion. The physical characters of the exudate offer in a majority of instances nothing distinctive. A hæmorrhagic exudation is suggestive but by no means distinctive, inasmuch as it may occur in cancer, or it may occur with ordinary simple pleurisy, as in two instances in our list. It is important to note that the effusion may be hæmorrhagic in either a chronic or in an acute form. I call to mind one instance in which the presence of hæmorrhagic exudate led us to suspect a terminal tuberculous pleurisy, but there were no tubercles on the membranes.

The bacteriological examination has been made now so frequently in acute pleurisies that there are facts enough at our disposal to warrant a somewhat definite opinion, and the general conclusion is that, except in very rare instances, the serous exudates are sterile, and tubercle bacilli have only been detected in a very moderate number, in only 32 cases, according to the recent article of Prince Ludwig Ferdinand of Bavaria. The inoculation of the exudate into the peritoneum of the guinea-pig, which has been practised in many cases, also gives variable results, but when positive is of great value.

The inoculation with tuberculin is, as mentioned, uncertain, and I may state here an instance in which it led us into error. Just as we were beginning to try it the late Dr. Christopher Johnston sent into the wards a young woman aged about twenty-eight or twenty-nine with a bunch of enlarged lymph glands on the left side of the neck and the axilla. She was fairly well nourished and made no other complaint but of gradual and progressive enlargement of these groups during several months. Within ten days or two weeks after admission a pleurisy developed on the same side, which we very naturally thought to be tuberculous. She was treated with injections, and the reaction on each occasion was particularly active. No benefit, however, followed them, and some weeks later she went to her home, where she shortly afterwards died. The autopsy, performed by Dr. Councilman, showed cancerous lymph glands in the sub-clavicular and axillary regions and extensive cancerous pleurisy — the primary disease being a nodule of carcinoma about the size of a walnut in the left breast. Some months subsequently, in illustration of the curious coincidences which we all meet in practice, I saw a case presenting striking similarities in the practice of Dr. Burns, of Toronto, also in a comparatively young woman, but the infiltration about the pectoral muscle called my attention to the condition of the breast.

The diagnosis of the purulent form of tuberculous pleurisy is less difficult. A proportion of these, at least 75 per cent., depend upon infection with streptococci, the pneumococci, or the staphylococci. The tubercle bacillus may be present and in some acute cases, as in the one referred to, very abundant in the pus. In other instances, definitely proved to be tuberculous, staphylococci have been present, and sometimes the effusion is sterile. The course may be extremely suggestive, and it has long been known that the latent variety of empyema is not uncommonly tuberculous. As already mentioned, the fluid may not be truly purulent, but the turbidity due to the presence of large quantities of fatty material.

And lastly, a great difficulty in diagnosis may exist in these cases of sero-fibrinous pleurisy which recover with thickening of the membranes and persistence of flatness at the base. The most suspicious instances are those in which the fluid constantly recurs in spite of repeated tappings, and in which, with diminution apparently in the amount of exudate, the flatness persists, usually with transmission of the tactile fremitus, and sometimes, as time proceeds, marked flattening of the affected side. The records of Cases I, IX and XI show a sequence of events only too common. Possibly some of these cases, with flattening at the base and slight retraction, heal, and no further trouble occurs. Certainly they are not always tuberculous, such a process may follow a simple sero-fibrinous pleurisy or an empyema. Thus in a young woman aged twenty-three, who was admitted to my wards November 17, 1890, with the right chest flattened behind and at the sides, with dulness at the right base and curvature of the spine (and who died of anæmia associated with syphilis of the liver, and lymphatic nodules), the right lung was firmly adherent, the pleural membranes were thickened, particularly at the extreme base, and between the thickened layers there was a cavity containing about 70 c. c. of an opaque, whitish fluid. The cavity presented adherent calcareous flakes, and there was no caseation. Such instances are by no means uncommon in post-mortem work, and unquestionably contraction and flattening at the base and slight drooping of the shoulder may persist for an indefinite number of years without leading to any more damage than perhaps a progressive bronchiectasis in the lower lobe. Clinically, too, these cases are not very infrequent, and though one may have a suspicion from the history, yet good health may be maintained for many years and evidence may be entirely wanting of any tuberculous process.

V. TREATMENT.

The indications are twofold: first, to limit and control the exudate and to promote its absorption. It would take me far away from the immediate subject to discuss here in full the therapeutics of pleural effusion. In the early stage it is sufficient to allay the pain, if severe, with opium, to reduce the fever, if high, by sponging, and to keep the bowels freely opened. It is doubtful whether the salicylates deserve the confidence which many claim. To promote absorption various measures are advised. It is important to remember that when fluid remains in the chest it is for the very good reason that it cannot get out, owing to blocking of the lymph paths. Absorption from the pleura goes on, as has been shown experimentally, with extraordinary rapidity, chiefly, if not entirely, from the costal layer. Probably in all instances of pleurisy with effusion, do what we may, the absorption has to wait the freeing of the obstructed lymph channels. I still believe that good results are seen by putting the patient on a dry diet and giving brisk, saline cathartics. It is a rational practice, and in some instances I have seen the exudate diminish rapidly. The diuretin, when it acts, is useful in the same way. If at the end of ten days the exudate persists, and is at the level of the fourth rib in the erect posture, aspiration is advisable, and it may be repeated again in a few days if the fluid reaccumulates. So far as I know, there are no greater risks in the tuberculous than in the simple sero-fibrinous cases, and it is very important to relieve the lung early of the compression to which it is subjected by any large quantity of fluid. I think, however, the risk of the compressed lung becoming the seat of tuberculosis is not very great; more serious is the danger lest it should become bound down by such firm adhesions that it cannot expand. Gentle counter-irritation of the skin is probably beneficial in these later stages, stimulating the lymphatics of the costal pleura.[4] In the cases of chronic sero-fibrinous effusion with thickening of the membranes the fluid reaccumulates rapidly, and aspiration may have to be performed very many times. In these instances systematic pulmonary gymnastics should be practised. The expansive efforts of forcing water from one large Wolff's bottle to another is a good method. When the exudate is purulent the case should be transferred to the surgeon for thorough drainage.

The second indication is to improve in every way possible the general nutrition of the patient, so as to favor conditions promoting the healing of the tuberculous process. No doubt, as in pulmonary and peritoneal infection, many instances of tuberculosis of the pleura recover and leave no more damage than that associated with slight thickening of the membrane. A life in the open air, regular habits and exercise, a nutritious diet, and the use of the remedies which promote in every way digestion and the assimilation of food should be advised. And finally we may lay to heart the words of Sir Andrew Clark: "When we have a patient with basic fibrinous pleurisy, let us hold him fast, restrict his freedom and treat him carefully until every remnant of it is gone."

Original Articles.

THE TREATMENT OF PNEUMONIA.[1]

BY F. C. SHATTUCK, M.D., OF BOSTON.

TWENTY years ago the profession generally held that croupous pneumonia is rarely fatal, except in the aged or in those whose constitutions are weakened by alcoholic or other excess. At that time the doctrine that the disease is a local inflammation of the lung, to which the general disturbance is secondary, was just beginning to give way to the view that the lung process bears much the same relation to pneumonia that the affection of Peyer's patches does to enteric fever. At present there seems to be a disposition on the part of some to return to the local disease doctrine, though, of course, in a different form, and to class pneumonia with diphtheria and erysipelas.

To-day there is certainly a dread of pneumonia among the laity, and, I think, the profession feels less confidence in the power of youth and vigor to withstand the disease than it formerly did. Has pneumonia changed its type in the last fifty or in the last five years? Has the resistance of the population diminished? These are questions which have been often asked. That which first led to their asking was the revolution in treatment, and particularly the abandon-

[1] Read before the Massachusetts Medical Society, June 13, 1893.

[4] The relation between the subcutaneous and pleural lymphatics must be very close. A fluid containing colored particles in suspension, injected beneath the skin in the axillary region of a rabbit, finds its way to the costal lymphatics, and the anterior mediastinal glands become stained. (Canada Medical and Surgical Journal, 1875. Article on Anthracosis.)

ment of venesection. We wonder how our predecessors could have bled, purged and puked patients whose every scrap of strength we seek to save. But they also treated consumption antiphlogistically. As far as we can reason from analogy it does not seem probable that the disease has permanently changed character. We do not think that other specific diseases have so changed in this period. If they have changed at all they have become less rather than more fatal.

The valuable paper of Townsend and Coolidge [2] shows that in the Massachusetts General Hospital there has been a marked increase in the mortality from pneumonia; but that this increase, when carefully studied, cannot be attributed to the change in treatment, and probably not to any change in the disease itself.

It seems to me that factors which are very important, but which do not easily lend themselves to statistical inquiry, are the great change in the character of the population, or perhaps still greater change in its manner of life, both poverty and luxury having greatly increased; and the wear and tear of the nervous system incident to modern commercial and domestic methods, which has been multiplied many fold. Cities have grown large. The very poor have a better water now than many of the well-to-do had in the days of contiguous wells and privies. But it is far otherwise with the air, whether in or outside the house. I must not, however, pursue these questions further, though they have an obvious bearing on therapeutics and its results. And I can only allude to the influence of grippe on pneumonia. The former seems to prepare the way for the latter only indirectly by lowering the resisting power. Influenza thus renders a person more liable to pneumonia, and also probably diminishes his chances of recovery.

Pathology and therapeutics do not always go hand in hand. In some diseases our pathology is ahead of our therapeutics: in others the reverse holds true. We began to treat pneumonia as a general disease before we knew it to be such, and we were convinced that it must be such before we knew of the existence of the diplococcus or toxines and anti-toxines.

The fruit of bacteriological discovery is not yet ripened, though, as we shall see later, there is reason to hope that ripening may be in process.

As far as prophylaxis goes we cannot as yet accomplish much. We can caution convalescents from other and milder affections, especially during the season to which experience shows us pneumonia is most incident. We can warn our patients at these seasons not to treat lightly severe colds. We can "preach the gospel of hygienic righteousness," as the late Dr. George Derby put it.

No method of aborting the disease which has yet been proposed has made good its claims. Pneumonia, like typhoid fever, may abort spontaneously. But we cannot make it do so. Still, it seems to me that the method of Pétresco, of Bucharest,[3] is worthy of trial. Since 1883 he has treated 755 cases of pneumonia with very large doses of digitalis from the time they first came under observation. He gives for two or three days a strong infusion, and claims to be able to cut early cases short, and to influence very favorably more advanced cases. His mortality now is only 1.22 per cent. He gives from one to two drachms of the leaves daily, the equivalent of one to two ounces of our tincture. In like manner we have had no distinctly curative treatment, though we are encouraged to hope that the injection of immune blood serum may prove to be such after further trial. In short, our efforts are at present confined to promoting the comfort of the patient, and conserving his forces in every way to enable him to outlive the self-limited disease. This in itself may be much.

For the better application of this general principle it will be more convenient to divide the disease into stages, remembering always that these divisions are arbitrary, and that nature does not seem to feel herself bound strictly to abide by them. Patients very rarely succumb to the stage of invasion or preliminary congestion of the lung with active implication of the pleura. The danger here is not of dying; it is rather of loss of strength, which may be sorely needed later. The indication, therefore, in the ordinary case is to relieve the pain, to put the patient to bed and freely open the bowels, just as the mariner prepares his ship for an impending hurricane. The severity of the pain and any known or ascertainable peculiarity of the patient will decide the character and amount of the means for its relief. In the early days, at least, there can be no question of the safety of morphine, which should be used freely and frequently, hypodermically. Restlessness and an excited nervous system call for morphia nearly as loudly as does pain. Dyspnœa in the average case is at this stage due far more to the pleuritic pain than to the state of the lung, But now and and then we see a case in which so much lung tissue is so rapidly invaded that the heart finds it difficult to adjust itself to the changed condition, and greatly oppressed breathing results. In such a case nothing gives such prompt relief as venesection, the freedom of which is to be proportioned to the age and vigor of the patient and its effect on the symptoms. With the veratrum viride treatment of the Philadelphia school I have no personal experience. If internal antipyretics are to be used at all in pneumonia it is only during the first stage that they are admissible. I am no friend of them myself, and never use them in this disease. Even the best of them is somewhat depressing to the heart.

During the prevalence of the old doctrine of the nature of pneumonia and of inflammation, treatment was naturally addressed to the diseased organ, and antiphlogistics were used externally and internally. We now recognize the fact — or believe it to be a fact — that the cause of death in the second stage is rarely asphyxia as a result of the amount of lung involved. The loss of function of a portion of the lung plays in most cases a rôle which is quite subordinate to that of cardiac exhaustion, dependent probably on the influence of toxines on the innervation of the heart rather than on changes in the myocardium. That it is mainly a toxæmia which weakens the heart and not simply the mechanically increased resistance in the right chambers, seems to be proved by the great fall in the pulse, as well as the breathing, coincident with crisis, although the physical signs over the affected lung area may show no appreciable change.

It is then the maintenance of nerve force which we must try to secure. This means the avoidance of every unnecessary fatigue and the administration of the largest amount of the most nutritious liquid food which can be digested, with free ventilation of the apart-

[2] Transactions of the American Climatological Association, 1889.
[3] Bull. de Thérapeutique, 1892, p. 120.

ment. It seems to me that the poultice and the envelopment of the chest in cotton or wool are relics of the old pathology. The poultice is the worse, as its frequent change involves notable fatigue and its weight is not insignificant. I have no experience with the application of ice, which seems to be gaining favor in this country after long use in Germany, to which country we are more apt to look for pathological than for empirical therapeutic suggestion. With regard to food and feeding, I do not propose to go into any detail. But I do want to enter a plea for greater freedom of ventilation than is generally allowed. Here, again, the old pathology seems to me still to influence the medical as well as the lay mind. I am convinced that courage in facing popular prejudice against cold air, and less reverence for the seventieth degree of the thermometer would subserve the interests of our patients and diminish the bills for oxygen. If I should be so unfortunate as to contract pneumonia, I trust that my doctor will put me in a sunny room and give me the benefit of a combination of open fire and open window. It is not pleasant to be accused justly or unjustly of killing our patients, and I must plead guilty, I fear, to a lack of the full courage of my convictions on this point. In the case of a very rich man whom I saw repeatedly in consultation last winter, and who wished no expense to be spared, I soon found that it was useless to try to get a window open. Nor did I succeed in getting even an open fire. But cylinder after cylinder of oxygen was breathed with avidity.

The use of morphia in the first stage has been already touched upon. Experience is leading me to think that it should be used more freely in the second stage than is customary. Here it is not called for by pain so much as by restlessness, cough and sleeplessness. In any given case we must try to estimate the proportion of danger from respiratory failure. The smaller this danger the more freely can we use morphia, which will do more good in resting the nervous system than harm in other ways. And even in cases where the danger of respiratory failure cannot be disregarded, but morphia is indicated on other grounds, I believe that the inhalation of oxygen enables us to give morphia when we might otherwise feel compelled to withhold it. With oxygen, of late years, I have had considerable experience. I have seen it given freely, and without regard to expense. But I can recall only one case in which I feel reasonably convinced that it saved life — that of a Harvard student whom I saw with Dr. Hildreth. Even here we had to deal with a patient whose age should have ensured his recovery according to the books. In many cases I have seen it give marked relief. Our experience with this gas is now sufficient to enable us to estimate its value better, and to use it more intelligently than a few years ago. Physiologists kept it out of use longer than we should have allowed them to do, telling us that the consumption of oxygen is no greater when the pure gas is inhaled than it is under ordinary conditions. Even if this is true of the well, it does not follow that it is also true of the sick. I suppose to-day clinicians are agreed that oxygen may be useful when a sufficient amount of air to arterialize the blood is prevented from reaching the alveoli, a condition which is present in some cases of pneumonia as the result of excessive secretion in the bronchial tubes in combination with the lung consolidation. Cyanosis is, therefore, the best single indication for oxygen. In such cases it should be used early, and as freely as the purse of the patient will allow. Unfortunately, it is still a very expensive remedy. But it is my feeling that its usefulness is wider than would appear from the above. I think I have seen refreshment, quieter respiration, a fuller pulse, and diminished restlessness, perhaps sleep, follow oxygen, even where cyanosis was absent or slight. I have asked myself the question whether the gas may perhaps act as an aid in the combustion of toxines, all compounds of unstable character, I believe. The other chief means of stimulating the flagging heart, as reflected in the pulse and the character of the sounds, are alcohol, strychnia, cocaine, digitalis, and other heart tonics. I shall not delay to speak further of alcohol, as I think we are all pretty well agreed as to its usefulness and the indications for its employment. Strychnia has grown in favor of late years, and I think justly. It is best given hypodermically, and, in severe cases, to the limit of toleration, one-twentieth to one-fortieth of a grain every three or four hours. H. C. Woods speaks highly of cocaine as an adjuvant to strychnia.

All writers advise, and all practitioners use digitalis or one of its congeners, if there are any indications of a failing heart. I have so used it constantly, but must confess that I do not feel perfectly clear as to its usefulness as it is ordinarily given. Perhaps we do not use it in large enough doses. I am sure that we should use it hypodermically more than we do. I have this year seen prompt and distinct effect in several cases follow hypodermics of thirty minims of the tincture. Pétresco's results are confirmatory of the idea that our doses of digitalis are often insufficient. An editorial writer in the *Therapeutic Gazette*, in 1892, in speaking of Pétresco's paper, which he evidently did not read with care, thinks that pneumonia must be a different disease in Roumania from that which we see, and that the digitalis must be of poor quality. The first supposition is highly improbable, and Pétresco has anticipated and answered the second. He notes repeatedly a pulse-rate of 36 to 48 within thirty-six to seventy-two hours after the digitalis is begun, and has supplied himself from the best houses in Paris and Berlin as well as from native sources.

With the cold bath and cold wet pack as remedies against high fever, delirium and other nervous symptoms, I have but slight personal acquaintance. A period of the disease which we all recognize as one of much danger in some cases is that immediately following the crisis. Exhaustion or collapse at this time calls for rapid stimulation; alcohol and ammonia internally, heat to the surface, brandy and ether under the skin.

In cases terminating by lysis, and in delayed resolution, a supporting treatment is to be carried out according to the indications presented by the case in hand. The frequency of empyema as a sequel to pneumonia, is never to be forgotten, if for no other than a therapeutic reason.

Lépine[4] has recently employed with success injections into the thighs or arms of oil of turpentine, when he feared that gray was passing over into yellow hepatization. Fochier first suggested and practised this method in puerperal septicæmia, having noticed that improvement took place when a focus of pus was established. The turpentine produces an abscess — "of fixation," Fochier terms it — which can be opened

[4] La Semaine Médicale, 1892, p. 77.

later. Dieulafoy and Bard [5] have each practised this method in pneumonia, with recovery in both cases. Others in France have also used it a few times, but I have not been able to get access to the journals in which the reports appeared.

In three desperate cases in my service at the Massachusetts Hospital, this winter, I had turpentine injected, in one case on the ninth, in two on the seventh day of the disease. All three died, as seemed certain that they would, whatever was done or not done. I do not think that these cases should really count for, or against the method.

For therapeutic purposes cases of pneumonia may be divided into three classes. First in frequency are those cases which will recover under any treatment or no treatment, unless they are grossly mismanaged; second, those which will die in spite of any and all treatment known at present; third, those in which judicious treatment may turn the scale.

Our object is constantly to strive to enlarge the third class at the expense of the second. Thus far, our efforts have been unsuccessful enough, it must be admitted. But, however sceptical we may be, we should not be hopeless, or refuse to listen to those who bring forward new methods, with an underlying basis of reason and fact. One method of curative treatment has been recently introduced which can claim an encouraging though limited success in practice, as well as foundation in analogy — with tetanus, for instance. Only one case has been reported thus treated in this country, but it would seem our duty to lose no further time, and I propose to test the method in my wards next autumn and winter.

I refer to the injection of blood serum from a human being who has recently passed the crisis of pneumonia, or blood serum or fluid derived from animals rendered immune to experimental pneumonia by the injection of pneumococcus cultures. I will not take your time by going into the details of this method and its technique. The articles of the Klemperers,[6] and others in Germany and Italy who have tried it, are accessible enough. Suffice it to say that the purpose is to induce the crisis artificially, and that of thirty-nine cases thus treated, collected for me from literature by Dr. R. C. Cabot, all save one recovered. Whether the pneumotoxin and antipneumotoxin theory of its mode of action is final or not, remains to be seen. In the sole American case [7] defibrinated blood was used, with results which do not encourage a second trial.

THE RELATION OF HOSPITALS TO MEDICAL EDUCATION.[1]

BY HENRY M. HURD, M.D.,
Superintendent of the Johns Hopkins Hospital.

It is not my purpose to argue the duty of hospitals to promote medical teaching. They have always contributed to it and always will, in an increasing degree, as medical education becomes better organized and more efficient. The hospital, whether avowedly so or not, has always been a school of medicine, sometimes to the few who were attending physicians, resident physicians or internes, and sometimes and now, I am glad to say, more often to those who are pursuing medical studies. The relation of hospitals to medical education has been reciprocal for good. Medical teaching has improved hospital work and hospital work, on the other hand, has improved medical teaching. Neither can exist without the other. It is my purpose, in this brief paper, to point out methods whereby hospitals can best subserve medical teaching and to emphasize the duty of promoting it. A hospital which does not contribute to the advancement of medical knowledge by bringing the results of its investigations and experience to the training of medical students in the plastic stage of their education, fails to attain its highest good or to surround itself with the brightest investigators. The duty being apparent, to point out the best method of attaining the desired end must be the sole object of the present inquiry.

(1) *Pathological Institutes.* — First in importance I would place the organization of a good pathological institute in connection with every hospital. By this I mean much more than an autopsy room and a museum for the preservation of morbid specimens. These are valuable, but their work is not of prime importance compared with what may be accomplished by systematic investigations in all branches of pathological study. Facilities should be afforded for the study of every morbid product. There should be opportunities for systematic bacteriological examination of pus, serous effusions, the products of inflammation, the bodily secretions and excretions, false membranes, new growths and the like. The diagnosis of diphtheria and of follicular tonsillitis, for example, should here be made by cultures, cover-slip preparations and the microscope. The different forms of peritonitis should be differentiated similarly. The effusions of pleurisy should be studied bacteriologically to determine the presence or absence of the tubercle bacillus. Malarial fever should be differentiated from other forms of continued fever by the presence of the plasmodium. The micrococcus lanceolatus, otherwise known as the pneumococcus, should be searched for in pneumonia and cerebro-spinal meningitis. Such studies are impossible unless rooms are provided, specially fitted up with apparatus, instruments and trained observers constantly at hand for the purpose. These studies give a definiteness to diagnosis by excluding possible diseases of other origin; and certainty to prognosis.

The microscopic study of tumors and new growths while an operation is in progress and before its completion, is of equal value. Three examples drawn from actual occurrences in a Baltimore hospital, will serve to make my meaning clearer. A patient with a suspicious abdominal tumor, presumably malignant, had submitted to an exploratory operation and a frozen section, while she was on the operating table and before the operation was completed, showed the growth to be tubercular in character. The cavity of the abdomen was drained and washed out with a sterilized salt solution and the patient made a good recovery. A second patient seemed to be suffering from a simple abscess of the breast, but a bacteriological examination of the contents of the abscess cavity showed that the inflammation was tubercular in character and led to the examination of the surrounding tissues, which were found to be filled with tubercle bacilli. A radical operation for the removal of these diseased tissues

[1] Read before the Hospital Section of the International Congress of Charities, Correction and Philanthropy at Chicago, June 12, 1893.

[5] Lyon Médicale, 1892, p. 533.
[6] Berliner Klin. Wochen., 1891, p. 833, and Wiener Med. Wochen., 1892, No. 22. Niesser: Deutsch. Med. Wochen., 1893, p. 593. Lara: Wien. Med. Wochen., 1893, No. 12. Bozzolo, Ibid.
[7] Hughes and Carter, Therapeutic Gazette, October, 1892.

then followed and a condition was found present which justified a grave prognosis. In another case a culture made during a severe abdominal operation, subsequently showed that a chronic peritonitis had been caused by a virulent streptococcus and led immediately to the isolation and separate nursing of the patient to prevent the infection of the ward. Such instances are of daily occurrence and the wisdom of these expert examinations is fully established by repeated experience.

In dressings, also, subsequent to surgical operations, similar sources of infection are revealed by bacteriological examinations; and the communication of infection to other patients may be prevented by the knowledge thus acquired. This work, while of prime importance, ought not to impede the true work of a pathological laboratory, which is to study the origin, course and effects of disease upon every organ of the human body. Every large hospital ought to have a paid pathologist, whose whole time should be given to this form of study and he should be provided with a sufficient number of assistants to do this work thoroughly. Diseased tissues and organs should be examined in gross at the autopsy table and afterwards the material should be studied in frozen sections and by hardened specimens. Cultures should also be made post-mortem of all products of inflammation to determine their precise character. These studies clear up obscure diagnoses and lead to the more successful treatment of other cases.

(2) *Clinical Laboratories.* — Every hospital ought also to have a clinical laboratory for blood examination, urinary analysis, the examination of the stomach contents and the examination of fæces and sputum. The blood should be examined, as a matter of routine, in all forms of wasting disease. The value of the methods of Ehrlich in the different forms of leukæmia is attested daily by practical observation. The differentiation of malarial from typhoid or other forms of continued fever, is frequently only possible when the plasmodium has been demonstrated in the blood. The importance of a bacteriological examination of cholera stools for the presence of the comma bacillus, has been recently demonstrated in the late cholera epidemic in Europe. The equal importance of searching dysenteric stools for the presence of amœbæ coli has been demonstrated many times in the Clinical Laboratory of the Johns Hopkins Hospital during the past year. Abscesses in the liver and lungs and one jaw abscess have thus been shown to be dependent upon this protozoan. The confusion which exists in the profession to-day, regarding malarial hæmaturia, can only be cleared up by similar expert examinations. In such clinical laboratories syphilis often needs to be differentiated from tuberculosis by the microscope. Skin affections also, like urticaria, favus, the different forms of dermatitis, tinea versicolor and tuberculosis need to be similarly studied. The presence of the otomycosis aspergillus in ear affections can only be definitely shown by the microscope. The tetanus bacillus, the streptococcus of erysipelas, the staphylococcus of suppuration and the pneumococcus of pneumonia and meningitis should also be similarly demonstrated when present. In no other manner can medical education be made definite and thorough. The day of theories and brilliant hypotheses to account for many of these diseases is past and demonstration ought to replace them.

(3) *Operating Rooms.* — Every hospital of any size, and especially a hospital to which medical students have access, should have surgical operating rooms arranged for carrying out a perfect surgical technique. Here should be consistent and constant efforts to reduce the danger to patients from the infection of wounds to the minimum. These operating rooms should be object lessons in thorough surgical cleanliness. There should be apparatus for hand disinfection and facilities for scrubbing and cleansing the hands. Every step in the technique of antiseptic surgery should be carefully prescribed and followed. It is now evident that infection of wounds does not come through the air or from atmospheric conditions, but rather from actual contact. Pus-producing germs gain access to wounds at the hands of the operator or his assistants or by infected instruments or ligatures or through infected skin-stitches or by subsequent dressings. Hence, it is of the utmost importance that the technique pursued in every hospital operating room be thorough and consistent to the end that every person may know the reason of the procedures adopted. Students and physicians should be trained to appreciate understandingly what is harmful and to be avoided and what is harmless and permissible. It may be asserted with confidence of no successful contradiction that, in the technique of many surgeons, unnecessary precautions are frequently taken and necessary precautions are as frequently omitted from a lack of adequate knowledge of the true sources of infection. These can only be adequately taught by bacteriological methods. Ligatures, instruments, bandages and all forms of dressings should be sterilized in such a way as to meet every bacteriological requirement. Cultures taken from the first dressings, made subsequent to an operation, should not grow upon any form of culture media. Experiments which have been made in wound infection have clearly demonstrated its sources and its methods of prevention. Each operating room should be as carefully arranged to carry out antiseptic precautions as the laboratory of the bacteriologist. More than this may also be asserted. Every operating room ought to pursue careful and systematic experiments upon hand disinfection. No one believes that an ideal excellence has yet been attained. These fruitful experiments are alone possible in large operating rooms with frequent operations and abundant facilities for carrying on the work thoroughly. It is most gratifying to call to your attention the fact that two large operating rooms have lately been constructed in New York with every facility for this systematic work. If they contribute, as they undoubtedly will, to the simplification and perfection of surgical technique, their erection will fully justify the outlay, as large as it may seem to the unthinking critic.

(4) *Photographic Rooms.* — An equally important part of the educational outfit of a general hospital should be a well-constructed and well-arranged room for photography. Here medical men should be trained to do photographic work in the various departments of hospital service. Each man should be taught the manipulation of cameras and photographic plates, and should learn methods of developing, printing, enlarging, etc. Photo-micrography has proven a very disappointing branch of photography. A poor drawing which accurately portrays what the observer sees is generally much to be preferred to the most finely finished microphotograph with its blotches of color and flattened surface. Not so, however, with what may be termed

gross medical photography. Its field of usefulness is apparently limitless. Many surgical conditions should be photographed upon the spot, even while an operation is in progress. The rapidity and accuracy with which newly-discovered or newly-recognized forms of disease have been made known to the medical public, are well shown by the disease known as acromegaly. Although this disease was first differentiated and described by Marie, in 1886, its peculiar *facies* became at once familiar to physicians throughout the world by the excellent photographic reproductions which were distributed, and to-day it is easily recognized wherever found by medical men who have never been shown a case. In a similar manner cases of myxœdema and the various forms of paralysis have been accurately portrayed, to the great advantage of the student of medicine. Photographs of skin diseases, deformities, muscular atrophies and hypertrophies, ulcers, tumors, aneurisms, surgical operations, surgical methods and surgical dressings, perpetuate these conditions much more clearly and satisfactorily than pages of description. In many instances these representations are sufficient to enable the observer who has not seen the case to confirm the diagnosis.

(5) *Charts and Graphic Representations; Histories.* — Allied to photography are the various forms of charts and graphic representations. These should be made with absolute accuracy and regularity, and should form permanent records in the hospital. The same is true of medical histories, which ought to be made up daily at the bedside. Such medical histories should be classified, indexed, catalogued and rendered accessible so that any fact of medical interest may be referred to at a moment's notice. There should be a medical staff large enough to do this work thoroughly well. The influence of these careful records upon medical knowledge can hardly be estimated; their greater influence in training medical men connected with hospitals, to habits of careful, painstaking, exhaustive observation and faithful records of the same, is undeniable.

(6) *Dispensary Work.* — The position of carefully conducted medical work in dispensaries or departments for out-patients in training medical men is well recognized. The patients who present themselves for treatment at these clinics, more nearly represent the patients with whom physicians come into daily contact than ordinary hospital patients. Hence the same necessity in dispensary practice of training students in habits of quick, accurate and thorough diagnosis and of painstaking records of the clinical facts which are obtained. Clinical methods and clinical records ought to be as systematic and complete in the dispensary as in the hospital. The facilities afforded by a dispensary for the study of physical diagnosis are, if anything, more valuable than those of a hospital. The same is true of the opportunity for learning the methods of diagnosis in minor surgery and the application of the ordinary surgical dressings. Practical work in the diagnosis and treatment of diseases of women is here feasible, and under competent supervision often proves most valuable. The opportunities for studying the specialties of medical practice are also of extreme value and should be utilized regularly. Every department of a dispensary ought to be under competent expert medical supervision, and all branches should be so conducted as to promote the training of students. The practical difficulty in many dispensaries is that the clinical material is not properly utilized.

(7) *Libraries, Reading-Rooms, Societies and Journal Clubs.* — Every hospital should foster a good medical library and a reading-room filled with the best and latest medical periodicals, and all members of the staff should be expected to use them, and should have time to do so. In most hospitals the medical men are sadly overworked, and through a superabundance of routine work lose all time, and too often all inclination, for medical reading or study. The advantages of a medical society and of a journal club are too obvious to require more than a mere brief mention. These organizations should exist in the staff of every large hospital.

(8) *Medical Staff.* — A careful consideration of the subject leads me to urge that all large hospitals be furnished with an increased medical staff, and that the terms of service of a portion, at least, of the medical men be considerably increased. It is evident to all who have watched hospital work, that the usual term of service extending over a period of twelve, sixteen, or eighteen months, brings active young men fresh from medical schools into hospitals to send them out to give place to other inexperienced young men about the time they are fitted to do independent work. The hospital, consequently, suffers from the mistakes which they make while they are receiving training, and by an inexorable rule loses their services as soon as they are fairly well trained to do efficient and fruitful work. This difficulty would be removed if arrangements could be made to give all fourth-year medical students routine hospital duties under competent supervision. This would train them in practical work to such an extent that when they assumed hospital appointments they would be fitted to undertake independent work, and could supervise the work of other fourth-year men wisely. In each department of hospital service a chief resident should be appointed whose term of service should extend over a period of at least three years. This would enable him to fit himself thoroughly for giving instruction to all assistant resident physicians, and to wisely direct their work. Such service is possible in European hospitals, and if a similar service could be inaugurated in the leading hospitals of this country it would mark a decided advance in hospital work.

In conclusion, I would urge the duty upon every hospital of doing every branch of hospital work as well and as thoroughly as it can possibly be done. If philanthropy recognizes it to be a duty to care for the sick poor and to minister to their comfort by convenient, well-appointed, well-ventilated and well-warmed apartments, the same duty demands that their medical care shall be equally thorough, painstaking and scientific. The best should be constantly striven for; and nothing but the best should satisfy those who are charged with their care. Every hospital should be an object-lesson in the proper care of the sick. It should demonstrate the best methods of medicine, surgery and gynecology, the most approved nursing, the best cooking for invalids and their kindest care.

IN India, 21,389 persons were killed by snakes in 1891, as compared with 21,361 in 1890. It is said that in many places in India snakes are bred with the object of getting the government reward for all snakes killed. The abuse is so great that it is proposed to abolish the system of rewards.

Clinical Department.

ABSCESS IN THE CEREBELLUM.

BY T. A. KENEFICK, NEWPORT, R. I.

ON the evening of June 28, 1892, a tall, robust Englishman, aged twenty-three, called at my office and complained of a severe pain in the top and left side of his head. He gave no other symptoms. There was no specific history. His temperature and pulse were normal, tongue slightly furred, skin and eyeballs slightly jaundiced. Had been employed as assistant steward on board a yacht for the past two months, and during this time he has not felt exactly right, and attributed it to the life on ship-board. He has also grown deaf, and his mates say he seemed duller and less active, being threatened with dismissal for his stupidity.

Phenacetine, calomel and small doses of morphine were prescribed that night, but gave no relief; the next morning he appeared in the same condition.

Fearing typhoid, he was advised to enter the Newport Hospital, and was admitted during my service. The next day, June 30th, at 10 A. M., pulse 88; temperature 97°, the pain still persisting. At 4 P. M., the pain had left the top of the head and centred at the base of the brain, the pulse now being 80, and the temperature $100\frac{2}{5}°$. 8 P. M., temperature 101°, pain increasing; patient restless and wakeful, morphine one-eighth of a grain hypodermatically, gave two hours sleep, when he awoke vomiting greenish matter, and complained of increasing deafness.

July 1st, 8 A. M., temperature 99°, and remaining so until the evening, when it reached 101°; the pain again increased, causing the patient to moan constantly unless under the influence of morphine.

July 2d. There was no evident change in his condition; his pulse and temperature were the same; he retained his nourishment and bowels were regular and normal. At 2 P. M., he became delirious, and at 4 P. M., his temperature was 104°, and pulse 88, with marked tenderness in the right iliac region. Phenacetine, five grains, was given every two hours, and at 8 P. M., temperature registered 102°, and there had been some diarrhœa, light in color.

The course of the temperature, the presence of clay-colored stools, iliac tenderness and deafness suggested typhoid fever, but his general appearance was rather against it, and a diagnosis was withheld.

July 4th, at 12.30, he had his first and only chill, lasting three-quarters of an hour, followed by a profuse perspiration, but no rise in temperature. For the next few days he remained fairly clear, mentally, had an irregular pulse and temperature, and was kept comfortable by injections of morphine.

The morning of the 7th, he sat up in bed, his head bent forward on his chest, and complained of slight muscular rigidity. He could, with some assistance, resume the horizontal position, but only for a moment, as it gave him severe pain. The continued low temperature and the absence now of the right iliac tenderness and his fairly good mental condition did not confirm the first suspicions, and that idea was abandoned; but the presence of the fearful and persistent pain at the base of the brain, increasing deafness, retention of urine, some vertigo, and the peculiarly rigid condition of the muscles, all pointed to a serious lesion, and a definite diagnosis was made of a tumor at the base of the brain.

In this flexed condition, sitting up in bed, his arms encircling his knees and his head resting on his arms, he remained for thirty-one hours, taking a fair amount of nourishment, and growing more and more irritable and difficult to manage, until the morning of the 9th, when he suddenly stretched out on the bed, breathed with difficulty, and before the nurse could reach him he was dead.

An autopsy was obtained and performed in the presence of Drs. Beverley Robinson and Ecroyd. On dividing the scalp and calvarium, blood flowed very freely, which might be accounted for by the prolonged flexed condition of the body. Dividing the cerebellum at the base, there was found a cavity large enough to hold a billiard ball containing a quantity of greenish, horribly offensive pus, which was also scattered over the adjoining surface, probably occurring at the time of rupture, causing the sudden death.

It was evident that the process of suppuration must have been of long duration and of spontaneous origin, as the other organs were healthy. Special effort was made to find ulcerative patches along the intestine without any result.

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

EIGHTH ANNUAL MEETING, AT WASHINGTON, D. C., MAY 30, 31 AND JUNE 1, 1893.

FIRST DAY. — MORNING SESSION.

PRESIDENT'S ADDRESS.

PRESIDENT LOOMIS, in his opening address, said in part: We have just celebrated, as nations count, our fourth birthday, yet the word American stands before the world for all that is most advanced in science. As we enter upon the new century year, it should be with the full appreciation that the theory and practice of medicine have given place to the science and art of medicine. The nature of this change cannot be more tersely or aptly described than in the words of Ruskin, "the work of science is to substitute facts for appearances and demonstrations for impressions," which plainly means that all our errors in science are subjective. The day of speculative medicine has passed; henceforth we must know, not suppose; and whatever is offered in public must have the stamp *scio*. The tripod support of science is *observation, theory, demonstration*. The first gathers facts, the second considers their relations, and the third tests all. Scientific scepticism is perhaps the most striking characteristic of medical investigation to-day — a scepticism which doubts, not for the sake of doubting, but which demands proofs and counter-proofs; which scans facts, not men, and learns to recognize truth from whatever source it may come. As a legitimate result of this spirit, there has been developed what is without question the greatest advance in methods ever made in medical science. When the medical history of the last half of the nineteenth century shall be written it will be largely that of the laboratory. Among the names which the twentieth century must honor none will stand higher than those who having devoted themselves to establishing objective facts of medicine were not beguiled by their

work to elevate the experimental above the practical. Let us, also, who are brought into such intimate relations with the practical, see to it that we are equally wise and self-controlled. The experimental alone can never accomplish the great work that is ever before the physician. It assays, indeed, the solution of ultimate problems, and seeks to grasp the primal forces of disease; but it must perforce grapple with each one singly, never with all those infinite combinations which make up the sum of what we call disease. We can never safely ignore the rich store of clinical facts gathered by so many master minds, or let them be withdrawn within the recesses of the laboratory. Although from the laboratory we hope to receive the solution of many problems which have long baffled us, it must be remembered that the special field of medical investigation is, and ever will be, disease in its activities — all its forces can be studied and understood only at the bedside of the patient.

Dr. Loomis, in closing, spoke of the death of two of the members during the past year — Dr. William Geddings and Dr. George Ross. Both these men did all that man can do. They did their part in life with faithful zeal until their powers gave way; and with the wisdom which never dwells in sordid minds they did not leave their mental wealth for legacies, but day by day transferred it to men with fresher strength, and gave over, not gave up, their work, content in the knowledge that it was not to cease, but grow larger year by year; and when, at last, their summons came, the best of all they had, the essence of the man, his quality, they left with us. Both were in the prime of their years, yet their fifty-five and forty-seven years are added to those marks of death from which the years are slowly crystallizing out the deepest spirit of our work. At present the world calmly reads those lines of silent figures, and carelessly says, "Yes, doctors are the shortest lived of all the professions," and thinks no more of what that means. Perhaps the world will never stop to think; but in that day when all our books are closed and other books are opened, who looks along the line until he finds "Physician," will look in vain for the small fraction of life's span, but may read instead, "he saved others, himself he did not try to save."

ON THE COURSE AND TREATMENT OF CERTAIN URÆMIC SYMPTOMS,

by Dr. Beverley Robinson, of New York.

Renal insufficiency *versus* uræmic symptoms. Adopt the former name to cover a definite series of symptoms. Cases reported which serve as a text to explain views upheld. Cases of inflammation in the respiratory tract, due to functional inactivity of the kidneys. Symptoms similar to those in the cases reported sometimes connected with organic renal changes. Treatment in the evident gouty cases with renal disease. Occasional inefficacy of the nitrites. So-called increased arterial tension merely the consequence of atheromatous thickening of vessels. Whenever renal function is insufficient, watch carefully the use of digitalis. Pernicious effects of even small doses of opium in chronic renal disease. Changes in the urine in interstitial nephritis. The hypodermic use of morphine in chronic Bright's disease; to be used with great care when the heart is weak primarily; not to be used even with weak heart when the pupils are contracted; in doubtful cases abstain from the use of morphine; in convulsive seizures of acute uræmia morphine frequently produces remarkable curative effects; in some instances, after the use of morphine, there are profound coma and contracted pupils, showing perhaps evil effects of morphine. Reflections as to the rôle of the kidney as an elective filter — the different poisons retained in, or eliminated from, the economy; various morbid effects produced by their retention. Primary source of uræmic symptoms not to be found either in the kidneys or heart, but often in the digestive tract. Intestinal antisepsis. Value of oxygen by inhalation.

Dr. James Tyson, of Philadelphia, supported the views of Dr. Robinson as to the effect of opium upon chronic kidney disease, and its tendency, in his experience, to invite coma and convulsions. He had seen two drachms of paregoric cause an old man to pass into coma from which he never recovered. Doubtless many cases of uræmic convulsions in puerperal eclampsia are successfully treated by hypodermic injections of morphia. It is in cases of chronic interstitial nephritis that morphine is dangerous. Cases of puerperal nephritis are cases of parenchymatous inflammation of the kidney and morphine is borne better in cases of parenchymatous inflammation than in cases of interstitial inflammation.

Dr. W. W. Johnston, of Washington, thought that the class of cases described by Dr. Robinson were very common, and more so than formerly. He had read a paper on this subject about eighteen months ago, in which were presented cases almost exactly analogous. His conclusions as to the nature of these cases were very much like those of Dr. Robinson, except that he gave greater prominence to the intestinal condition as the primary cause of the diseased state. There is but little doubt that the primary source of these disturbances is situated in the digestive tract, and it is the accumulation in the blood of the morbid products of digestion that starts the train of phenomena. In many of these cases the explosions are due to the inability of the kidney to excrete these excessive altered albuminoid products. Another cause may explain some of the acute attacks, namely, that they are the result of acute absorption of toxic matters from the intestinal fermentation. Some cases are too sudden in their onset to be due to renal inadequacy.

Dr. I. E. Atkinson, of Baltimore, spoke of the use of opium in uræmic conditions. There is no therapeutic fact, he thought, more capable of demonstration, than the extreme value of opium or the hypodermic use of morphia in the treatment of dangerous uræmic symptoms, especially in the sudden and acute œdema of the lungs that come on in the course of contracted kidney. When called to an early attack of œdema of the lungs in the course of contracted kidney, he felt that in five or ten minutes after administering morphine hypodermically, he would see that cyanosis disappear, the breathing become more quiet, and in the course of half an hour or so, the patient restored to his usual condition. It is a little strange that where one can relieve very promptly by the use of morphine a condition of extreme distress and danger, that the same therapeutic measure should be so dangerous in conditions of mild renal insufficiency; that morphia should be a dangerous remedy when the degree of toxæmia is mild, and a remedy of great value when the degree is extreme. Testimony shows that dangerous symptoms do sometimes succeed the administration of small doses of morphine; but the explanation may

be found in the fact that the symptoms are increasing at the time of the administration of the morphine, and would continue to increase no matter what was administered. The severe symptoms, in other words, follow the administration of the opiate but are not in consequence of it.

DR. ALFRED L. LOOMIS, of New York, said that when he brought the hypodermic use of morphia for the control of acute uræmia before the profession he had stated very positively that it was for acute uræmia and not for chronic, and for those cases of acute uræmia where there was no knowledge of any previous renal disease (such cases as are seen in acute parenchymatous nephritis, in the various infections, and which occur in connection with exposure to wet and cold). Those that came on during child-birth were particularly the cases which he had brought before the profession as being relieved or controlled by the plan of treatment. Afterwards he had found that morphia was being used in cases of chronic uræmia, which was an entirely different condition. If it is used indiscriminately in chronic uræmia, a great deal of harm may be done. Only in those cases of chronic uræmia where you have a large and dilated heart and where œdema of the lungs occurs, partially on account of the uræmia and partially on account of the condition of the heart, should opium be used; and in these cases opium is a power because it controls the heart.

DR. BEVERLEY ROBINSON, of New York, said that he was strongly convinced that the junior members of the profession had used opium in the treatment of uræmia so inconsiderately and so unwisely that in a great many instances much harm had been done. We know very little about the direct influence of structural changes in producing marked uræmia; and as Sir Andrew Clarke has pointed out, we must look, after all, in our interpretation of the disease, to the functional derangement rather than to the pathological changes.

(To be continued.)

Recent Literature.

A Medical Hand-book for the Use of Practitioners and Students. By R. S. AITCHISON, M.B., C.M., F.R.C.P.E. London: Charles Griffin & Co. Philadelphia: J. B. Lippincott Co. 1893.

This is a small hand-book of somewhat over three hundred pages, suitable to carry in the pocket, containing the pathology, diagnosis and treatment of all diseases, besides much other useful information. It might be useful to a physician to carry in his buggy to refresh his memory, or to the student to help cram for an examination. It contains, perhaps, as much as could be expected of a book which condenses to such an extent.

The Year-Book of Treatment. Philadelphia: Lea Brothers & Co. 1893.

This small volume gives a critical review, for practitioners, of the current literature of treatment in all departments of medicine and surgery. Many of the brief abstracts are valuable and suggestive, although being written by different men they vary widely in their value. A good deal of what is contained in such a book is of little importance, as it necessarily includes much that is evanescent in character.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, AUGUST 10, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

BACTERIAL POISONS.

No subject at the present day can be more interesting, and yet but little is known respecting bacterial poisons. The work of Gamaleia,[1] despite its literary merit and the great array of facts, is a little disappointing, and one really wonders on reading this book that so much could be written, and so little information given.

The first experiments of Seybert, Gaspard Stich, Magendie, Dupuis and others established the symptoms and lesions of experimental septicæmia. Panum showed that it is produced by a chemical poison: Bergmann and Schmiedeberg determine this poison to be an alkaloid sepsine. This result marks a first stage in the investigation. Down to about 1870 Panum's views were almost universally prevalent. Bergmann's sulphate of sepsine, obtained in crystalline form from putrid infusions, was believed to be the veritable putrid poison that causes septicæmia, and the action of microbes was ignored. Sepsine was thought to be a ferment, acting in infinitesimal quantity.

It was, however, soon found to be impossible to ascribe all the forms and symptoms of septic poisoning to sepsine alone, and that the poisons produced by putrefaction were many and various, according to certain conditions; and there was for many years a contest between the chemical and the vitalist doctrines, ending in the victory of the latter. Liebig's hypothesis that the soluble ferments are albuminoid matters in process of decomposition, was overthrown by Pasteur, who demonstrated that fermentation and decomposition do not exist apart from the life of organized ferments. Moreover, the contagionists were soon able to prove the fallacy of the chemical doctrine by showing that certain microbes separated from their morbid products were able to produce determinate diseases. At the same time was established the fundamental no-

[1] Bacterial Poisons, Detroit, 1893. (American Edition, translated by E. P. Hurd, M.D.)

tion, proclaimed by Cohn, of the specificity of bacteria, and bacteriology took its place among the sciences. The vitalist doctrine was not, however, in absolute contradiction to the chemical; and Panum has the merit of having understood the possibility of reconciling the two theories. He affirmed, that "it is incontestible that the putrid poison is chemical, but that it might be produced by a microbe, even a determined microbe. In diseases, both the pathogenic microbe and the production of the poison by the microbe, may play their respective parts." These words, uttered in the infancy of bacteriology, have been shown to contain a profound truth.

The discovery of ptomaïnes by Selmi, Brieger, Gautier and others marks the next stage in progress. These discoveries date from about 1870. The list of cadaveric alkaloids naturally resulting from putrefaction of albuminoids was soon quite large; and the query was soon raised whether it might not be dangerous to eat flesh, or even fish, and other animal products, for fear of ptomaïne poisoning. At least, invalids with weak digestive functions were warned of the danger. Later on, a careful criticism of the work of Gautier, Nencki, Brieger and others justified looking with suspicion on their different methods of extraction of ptomaïnes. There is even warrant for believing, as Gamaleia shows, that these methods were likely to create artificial products which did not pre-exist in the albuminoids analyzed.

A part of the work of these experimenters will still stand; but the spontaneous formation of ptomaïnes is not so constant a phenomenon as was taught, and the microbial poisons are not ptomaïnes. As for the typhotoxine of Brieger, Bassi has shown that it does not pre-exist in the cultures of the typhoid bacillus; and Salkowski has never been able to find the pepto-toxine of Brieger in the products of gastric digestion; in fact, Bouveret and Devic have proved this supposed ptomaïne to be "an artificial product which is formed at the expense of albuminoid matters by the combined action of HCl and alcohol."

Roux and Yersin, as a result of their experiments on the poison of diphtheria, conclude that by all its reactions the diphtheritic poison resembles diastases, and none the less by its intense activity in infinitesimal doses.

Gamaleia, after a somewhat exhaustive examination of the whole subject, and with the help of researches of his own, concludes, "that the toxic action of the bacteria is not linked to their fermentative action; it does not coincide with any known diastasic action." The microbial poisons have been supposed to be "secretions"; nevertheless, this comparison with secretions accounts but superficially for the facts. "First, there are certain pathogenic bacteria which produce such diseases as tuberculosis, cholera and charbon, where we do not find any toxic secretions. Then, again, even the production of poisons in diphtheria and tetanus has a very superficial correspondence to a secretion. In fact, the quantity of these poisons in the culture liquids does not grow proportionately to the development of the bacteria themselves. On the contrary, an attentive observation reveals the following facts: At the very first, and at the most active moment of the life of the microbes, the liquid of culture is acid, and devoid of all toxic power. Later, when the bacteria have ceased to multiply and are deposited at the bottom of the culture flask, the liquid becomes alkaline and very highly toxic. Its toxicity augments progressively with the duration of the sojourn of the bacteria in their alkaline liquid of culture."

The explanation of this fact he finds very simple: "The poison is contained inside the bodies of the bacteria, and is extracted slowly by the alkaline liquid in which they are macerated."

We have not time to pursue the subject further, and must refer those interested in the subject to the treatise itself. In short, Gamaleia believes that the microbian poisons "are the results of the creative syntheses of the bacteria, and come from their bodies.

"Thus is again confirmed our hypotheses respecting their chemical nature, which identifies them with the constituent parts of the nuclei of cells — the vitellines and nucleines.

"The toxicity of the microbian bodies may have also a teleological signification explicable from the point of view of the struggle for existence and of natural selection: for the toxicity of the bodies of bacteria may be useful to them as a means of preserving them against aggressors which would devour them."

THE ONLY ORIGINAL JACOBS.

AN enterprising firm issues a combination circular containing the following useful information for the medical profession: "Board and Rooms at the Columbian Exposition; Vaccine Virus; and Lithograph or Chromo for Embellishing a Physician's Office or Drug-store."

A remarkable statement in this circular is the following: "The source of the vaccine is '*America's only authenticated case of spontaneous cow-pox.*'"

There was a period, beginning about 1870, when the word "Beaugency" was employed very largely in the United States as a synonym of purity and unusual value in connection with the production and sale of vaccine lymph. The commercial value of this term to the vaccine purveyor, was undoubtedly considerable. If, however, the researches and the rapid progress of the past few years in the study of the natural history of infectious diseases have proven anything, they have shown quite conclusively that the *spontaneous* or *de novo* theory of the origin of infectious diseases is a shadowy myth, and that such diseases have their origin in previous cases, with as much certainty as the fact that the oak tree always springs from an acorn, or the field of grain from a previous sowing of the same kind of grain. If we cannot discover the

source of an infectious disease, or trace its origin, we have no right, therefore, to assert that such source or origin does not exist.

Infectious diseases are the common property of man and the lower animals; and in asserting to himself a sort of proprietary right in any particular case of infectious disease, man is transgressing the pale of nature's laws, since such infections are a common property and a common liability of all.

Moreover, cow-pox is not so rare an occurrence in the United States as the circular in question would lead us to infer. In Wood's "Reference Hand-book" (article *Vaccination*), at least twenty well-authenticated cases of cow-pox in the cow are mentioned as having been examined and reported by several different observers in the United States, mostly between 1870 and 1880. These cases occurred mainly in years and in districts when and where small-pox was prevailing, and only corroborate the evidence accumulated in earlier times by Ceely of England, and recently by Haccius and Eternod of Geneva, Dr. Simpson of Calcutta, and Dr. King of Madras, that cow-pox is simply a modified small-pox.

There has always been an attempt on the part of the commercial vaccine purveyor to show that cow-pox is an extremely rare disease, and that Messrs. So-and-So are the only possessors of and dealers in the original and genuine authenticated spontaneous article. It is not creditable to a great and liberal profession to lend its aid to so-called theories of the source of infectious disease which have their origin in commercial methods and not in the careful investigations of science.

In those countries where the general government furnishes the supply of vaccine lymph, as in Germany, Belgium and Italy, the term *spontaneous cow-pox* is rarely used. Cases of cow-pox occasionally occur; and when they are observed, they are not unfrequently resorted to for the purpose of renewing the stock of lymph, as in the recent cases in Wiltshire, England, and Eysines and Cérons in France.

In Germany there are at present twenty-five cities, in each of which is a well-equipped vaccine station for the purpose of supplying vaccine lymph from the heifer. The demand for lymph is not, as in America, largely due to the spasmodic efforts of local boards of health exerted in time of small-pox epidemics, but is the result of the continuous and uniform execution of the law of the country, requiring the vaccination of all infants and the re-vaccination of all who have arrived at the age of twelve years. As a result of the enforcement of this law, Germany is to-day, and has been for the past fifteen years, more free from small-pox than any other country in the world.

Thus far in the United States, only one or two States have made provision for the furnishing of vaccine lymph by the government. In Minnesota the State Board of Health conducts such an establishment, and furnishes lymph to physicians throughout the State.

POSTPONEMENT OF THE INTERNATIONAL MEDICAL CONGRESS.

WE have just received the following letter:

NEW YORK, August 6, 1893.

MR. EDITOR: — The undersigned, chairman of the American National Committee of the Eleventh International Congress, has received the following cablegram:

GENOA, August 4, 1893.

DR. JACOBI, 110 W. 34th St., New York. Congress postponed to April, 1894. Letter follows. MARAGLIANO.

This official information, communicated by the secretary-general of the Congress, interrupts the preparations made for it. As many of our medical fellow-countrymen have been preparing to visit the Congress, which was to be held on September 24th, I trust you will give the news herein transmitted the greatest possible publicity.

Very respectfully, A. JACOBI.

It will be remembered that there was a rumor during the spring that the International Congress would be postponed on account of the question of sanitary safety, which, of course, meant the danger of cholera. Cholera has existed in Naples during the past month, and has this week been reported by cable to have appeared in Rome.

The Congress was to have met on the 24th of September, and it is probable that this postponement is due to the possibility of a serious outbreak. It will be a disappointment to those who have already made preparations for attending the meeting this autumn; but, on the other hand, the month of April in Rome is delightful, and it is possible that as many may be tempted to go at that time. The change in time will also, perhaps, increase the attendance at the Pan-American Congress in Washington, and also the number of physicians, both American and foreign, who will visit the World's Fair in Chicago.

MEDICAL NOTES.

THE CHOLERA. — The cholera in the East has on the whole decreased during the last week. In Turkey and Russia there have been cases reported from several new districts, showing a moderate general spread of the disease. In France, and especially in Marseilles, the death-rate has increased; there being now a daily mortality in Marseilles of nearly twenty-five. During the last four weeks there have been 826 deaths from cholera throughout France. In Italy the government has still remained careless to the increasing number of cases, and the official reports from Naples are much understated. There are at present about fifty new cases and thirty deaths daily. There has been a veritable panic among the residents of the city, and many thousands have fled. Several sporadic cases have occurred in Rome. In the interior districts of the Mediterranean shore there has been no marked increase.

THE CHAMBERS STREET HOSPITAL, NEW YORK. — A correspondent of the *Medical Record* writes concerning the erection of the new building for the Cham-

bers Street Hospital, that, spacious and modern as the new rooms may be, the older ex-house-officers will remember with pleasure the small, inadequate buildings in which the great work of the institution was carried on. A cause for especial pride is the record of work between the years 1876 and 1888, when the hospital staff, under the lead of Dr. William T. Bull, so carefully studied and thoroughly carried out the details of antisepsis in its early days, that the hospital may claim to have contributed not a little to modern surgery.

The Diphtheria Outbreak in New Jersey. — Dr. Hunt, medical inspector of the New Jersey State Board of Health, has reported upon the outbreak of diphtheria occurring at Hightstown in that State. He found that eighteen of the twenty cases investigated were in families supplied by the same milk-man, in whose employ was a lad suffering from diphtheria, but at work in the dairy. The general sanitary condition of the town was good, and had no part in the epidemic.

Admiral Tryon's Illness. — So much has been said about the illness from which Admiral Tryon was recovering at the time of the loss of the *Victoria*, and its effect upon his nautical judgment, that it is interesting to read the testimony of the fleet-surgeon before the court-martial. The admiral had an ulcer upon one leg which was exceedingly slow in its healing, necessitating over a month's absence from duty. There was no fever or general disturbance beyond the local trouble.

Ante-mortem Burial.—Seymour, the mind-reader, who a short time ago announced his intention of being buried alive to test his power of suspending animation is having great difficulty in carrying out his plan. He intended to be buried in an especially constructed casket which communicated by an electric wire with the surface. Over the grave some corn was to be planted and when this had grown and ripened Seymour was to be dug up. His difficulty has been to find a grave. No cemetery company will allow his interment in its grounds, and Seymour has so far found no one who will take the responsibility of burying him anywhere. It looks as if this fool-hardy experiment would be made impossible, as it is to be hoped it will.

Fifteen Pairs of Twins. — A correspondent of the *Lancet* reports a bit of domestic history which is wonderful, if true. A woman in making a contract statement for life insurance solemnly asserted that her father died at the age of eighty; that her mother was alive at the age of seventy-nine; that she had four brothers and four sisters alive and in good health; that her mother had "had thirty-three children, fifteen times twins," and that "twenty-four died under six months old." The writer while he would not vouch for these facts saw no reason to discredit the woman's word or honesty.

Cure of a Case of Movable Liver. — Richelot reports to the Académie de Médicine the successful cure of a case of movable liver. The patient was a woman, twenty-eight years old, who had suffered for some time with abdominal pain. The right iliac fossa contained a large, firm tumor which on operation proved to be the liver, which had fallen downward into a vertical position and had become adherent in places to the cæcum. The bands were broken up, and the liver replaced and fixed by three sutures passing through the thickness of the abdominal parietes and Glisson's capsule. The recovery was uninterrupted, and the displacement had not returned.

A Reception in honor of Prof. Adam Politzer, of Vienna, was given at the University Club in Boston last Tuesday evening by Drs. C. J. Blake, J. O. Greene and H. L. Morse.

New York.

Contaminated Wells in Central Park. — Dr. T. F. Janeway having reported that he had attended three patients suffering from intestinal trouble which was produced by drinking the water of a well situated near the tennis courts in Central Park, the Board of Health requested its chemist, Dr. Martin, to make an analysis of the water, and the result showed that it was contaminated with sewage. In consequence, the well was condemned, and ordered to be closed, and Dr. Roberts, Sanitary Superintendent, has requested the Park Commissioners to furnish him with a list of all the wells and springs in the Parks in order that their waters may be submitted to analysis.

A Dinner to Dr. Politzer. — Dr. Adam Politzer, the celebrated otologist, who is an official delegate to the Columbian Exhibition at Chicago from the University of Vienna, arrived August 3d on the *Aller*, and on the evening of the following day he was given a dinner at the Union League Club by Dr. Gorham Bacon, which was attended by a considerable number of well-known New York physicians.

High Mortality. — The climax of the summer's mortality was probably reached during the week ending July 22d, when the number of deaths reported was 1,257. In the following week the number was reduced to 1,084; representing an annual death-rate of 29.83 per thousand of the estimated population, which is about the same as that of the average of the corresponding week for the past five years. During the corresponding week last year, when the weather was intensely hot, the number of deaths reached 1,434; representing an annual death-rate of 40.83, which is about the highest in the history of the Health Department.

Miscellany.

MR. HART'S IMPRESSIONS OF THE MEDICAL PROFESSION OF AMERICA.

Mr. Ernest Hart, on his return voyage, wrote for the *British Medical Journal* a preliminary report of his visit to this country. His visit was a most pleasant one in every way; and the cordial greetings he received from the various professional bodies left upon

his mind, he says, a succession of vivid pictures of the self-respecting originality, the marked regional individuality, the friendly but distinctive competition for progress and leadership of North, South, East and West.

Two of the pictures are of especial interest: "New York, with its wealth of clinical material, its largely developed hospitals and schools, and its prosperous practitioners and consultants, has a certain leadership which some think too self-confident, with its roots not yet deeply set. Boston cultivates with proud reserve and academic polish traditional thoroughness and a high university culture."

He criticises in a friendly spirit the causes of the imperfect professional union of different sections of the country, as being of importance not only to this country but to the medical profession at large. He looks upon the present time as a critical period in the development of professional life in America, owing to a tendency to sectional caucussing and special "congresses," which is threatening to limit the usefulness of much scientific activity. It deprives the "physicians," the "surgeons," the "laryngologists," and so forth, of the power for good which comes from mutual and common intercourse, and the cultivation of a sense of unity and affection, amiable criticism and common effort. "So much sectional difference has been aroused," he says, "and the organization of the annual sectional congresses all over the States has been so assiduously developed, that some difficulty may be found in restoring unity of sentiment and action. Nowhere, however, could the results be more valuable than in America of a common understanding on the relations if the profession to the public, and of their duties to each other. Nowhere does there exist a stronger need or a more useful sphere for medical thought and knowledge in guiding municipalities and executive officers in questions of public health and the government of public institutions, the endowment of science and the maintenance of adequate standards of education and examination. The future of the higher life in America and the development of culture and mental progress, the struggle against commercialism, and the blinding and corrupting worship of the dollar, lies largely with the professional classes. The medical tradition is essentially a protest and an antidote against this curse of new communities. The most superficial observer from without must see that this great attribute of medicine and this high duty and privilege are recognized and brought into play in very different degrees in the various centres of the United States. The newest settlements and States are far from being the least developed in this respect."

It was not only medical life which interested him and the great question of municipal sanitation which he so understandingly discussed in his addresses on the water-supply of Chicago; but the energies, capabilities and resources of our country were a source of great and deepening wonder, as he saw on all sides that which must make all Englishmen proud and happy — "unexampled vigor, unlimited resource, matchless natural marvels, a race of lovely girls, rapidly developing scientific institutions, and a growing passion for research, a continent in which lies the future of the world peopled by an Anglo-Saxon race."

It is his hope on his visit next fall to find a way of being useful in the direction of helping to a federation of the great medical forces of different sections of our country from the union of which in "a mutual and generous intercommunication, may be expected a hitherto unexampled development of professional usefulness and vigor in inspiring social action, in modifying further administration of health matters, in raising and purifying the standards of life, as well as in the advance of the art of healing."

ÆTIOLOGY OF PLEURITIS.

JAKOWSKI,[1] after bacteriological study of fifty-two cases of pleuritis, concludes that every pleuritis is of bacteriological origin, although the bacteria may not be found in the exudation. When repeated examination of a serous or purulent exudation shows no bacteria, the case may be considered as tubercular.

The majority of primary, non-tubercular pleurisies are due to the diplococcus of Fränkel. The next most frequent cause is the streptococcus pyogenes. Serous effusions containing these latter are much more likely to become purulent than those which contain only the diplococcus. The most favorable prognosis is to be given in cases which contain only the Fränkel diplococcus.

GASTRO-INTESTINAL EXHAUSTION.

AMONG the many cases of gastro-intestinal disturbances which occur in warm weather, a certain number may be fairly considered as a class by themselves, due not to poisoning or errors in diet, but best described as cases of gastro-intestinal prostration. The clinical picture is fairly definite. The onset is slow, as a rule; indeed the patient is often unable to give a more accurate date of the beginning of his trouble than "the first of warm weather." There is no history of errors in diet or exposure to cold — as there is no sudden onset of acute symptoms. A general mild anorexia for a day or two, slight irregularity in the action of the bowels and a little distress after taking of food, have hardly attracted any attention; but the continuance and gradual increase of a mild diarrhœal tendency are the first symptoms heeded. The diarrhœa is unaccompanied by pain, though often attended with flatus. Diet when at all rational has but slight connection with the diarrhœa.

The whole picture of the case when carefully noted is quite distinct from that of acute or subacute gastritis due to irritant ingesta. There is no fever or vomiting, though there may be slight nausea. The chief complaints of the patient are of the annoyance of the diarrhœa and of a sense of weakness. The ordinary treatment of a gastro-intestinal catarrh is usually given with a gradual improvement of the patient towards fall.

The noticeably good effect of a few cool days on the patient points to the rational explanation of the condition, the greater or less exhaustion of the nervous centres controlling the alimentary tract. The effect of heat upon the human system varies so much in different persons that it is not easy to trace the exact course of its workings. Some people are always "better" in summer, they like hot days, and with such people cases of gastro-intestinal exhaustion are not found.

[1] Zeitschr. f. Klin. Med., xxii, i, 2.

It is the person whose nervous system is below par, or easily exhausted by heat, who is troubled by this atony of all alimentary processes. Indeed, the digestion suffers only as a result of marked nervous exhaustion affecting chiefly the great ganglionic centres of the sympathetic system. With this theory of the cause of the patient's trouble the indications for treatment are seen to be quite different from those of an enteritis. The diet should, of course, be light and simple, but it should be abundant. The patient should be kept quiet, fed often and regularly, with varied but easily digested foods. Removal from a heated noisy city to cool localities is of the greatest importance, and care should be taken to avoid overheating or exposure to the sun. The nervous system should be given all the rest possible, as in cases of general nervous exhaustion.

Medicinal treatment should be not by cathartics and antiseptics for supposed ptomaïnes, but by thorough administration of nervous tonics and stimulants.

THERAPEUTIC NOTE.

QUININE IN CHOREA. — Dorland and Potts[1] report seventeen cases of chorea successfully treated with quinine. Hitherto the treatment of chorea has been by drugs which control the action of the motor nerves, or act as strong spinal depressants — in other words, blocking the manifestation of the disease rather than removing its cause. If chorea is due, as seems probable, to a greater or less diminution of the inhibitory power of a higher nervous centre, then the rational treatment is by drugs which stimulate and restore the function of that centre. Quinine appears to have this power to a marked degree and the results of seventeen cases treated with large doses are very promising. The children were from seven to fourteen years of age and were given four grains of quinine, four, five or six times a day until cinchonism occurred. The dose was then somewhat lessened and continued t. i. d. In most of the cases an immediate improvement took place and continued for some time. If the drug was used alone a relapse usually followed, but when combined with active treatment toward building up the general health gave permanent results. The large doses which most of the children took without cinchonism were remarkable.

Correspondence.

A POSSIBLE CAUSE FOR THE PRESENT PREVALENCE OF APPENDICITIS.

NEWTON LOWER FALLS, August 1, 1893.

MR. EDITOR: — "The smallest worm will turn if trod upon"; and the frequency with which cases of appendicitis are reported leads one to ask what new, broad-footed cause is trampling over the appendices vermiformes of the community. People are beginning to inquire in regard to this portion of the organism of which they now hear for the first time. Many explode in righteous wrath on learning that they possess an appendage, utterly useless in itself, but likely at any moment to become as dangerous a companion as would a stick of dynamite in their pockets. They regard appendicitis with much the same dread that they have for cholera, and wish to be told how to avoid it.

[1] University Medical Magazine, August, 1893.

Is the disease more prevalent than hitherto? Admitting that improved diagnosis and, not infrequently, actual inspection demonstrate to-day its existence in cases that a few years ago might have recovered or been buried under some other designation, it still seems that its apparently more frequent occurrence of late cannot be entirely accounted for upon that supposition. If this be so, it is time to ask in what manner the general condition of the community is changed — what especial causes are now operating to render persons liable to this disease, that were not in operation a few years since.

Food which we were formerly taught to regard as the usual cause of appendicitis, has not materially changed in its general character from what it was thirty years ago, and may be excluded. Not only are there no more berries eaten now than then, but a large number of the cases reported of late specify that no foreign body existed in the appendix. Clothing — while in its various fashions it may not only compress the abdominal regions, but may fail to properly protect them against harmful changes of temperature — is certainly at the present time no worse in these particulars than at any previous time during the past twenty years.

Looking beyond these two for a possible causal condition, however, we find in one particular a condition of recent origin which may possibly explain in some degree the frequency of the disease. I refer to the comparatively recent and very general introduction of methods of physical culture and the resultant growth of athletic sports. Calisthenics, as generally taught, appear harmless enough; but many of the postures involved cause a good deal of abdominal pressure. It goes without saying that where an overloaded ascending colon is subjected to such pressure, a portion of the fluid matter entering from the ileum might be forced downward into the appendix and be the cause of serious disturbance.

The danger from such a contingency would naturally be increased in the more violent gymnastics and the rougher athletic games — as base-ball or foot-ball, rowing, polo and the like. The position of the modern bicyclist when riding, seems very favorable to an injury of that description.

In short, any and all of these exercises are attended with a certain risk if taken when the intestines are overfull; and I am not aware that this fact has been given much prominence in published instructions and rules upon the subject. It therefore seems proper to call attention, both professional and lay, to the matter.

C. F. CREHORE, M.D.

A POSSIBLE OPPORTUNITY FOR WALTHAM WOMEN TEMPORARILY OUT OF WORK.

WALTHAM, MASS., August 1, 1893.

MR. EDITOR: — Among the hundreds recently thrown out of employment by the partial shut-down of the American Waltham Watch Company, are many young women of refined character, who would now be thankful for situations in families such as usually can be filled only at high wages or by those whose early advantages have been far less.

These young women are not experienced housekeepers, nurses or seamstresses; but they are ready to do their best in any such work and for moderate wages.

It occurs to me that in the practice of many of your readers there are probably families where the extra help thus available, would be welcome. And with the purpose of helping my townswomen in their present stress to such opportunities of earning their living, I offer my services as their agent. If parties desiring extra service will correspond with me by mail or wire, I will do my best to supply them. But, to prevent my falling into a permanent intelligence-office business, I beg to stipulate that my offer holds good only for this month of August.

Yours respectfully,

A. WORCESTER, M.D.

METEOROLOGICAL RECORD,

For the week ending July 29, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r.*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...23	29.71	66	74	58	71	69	70	N.W.	W.	14	12	C.	C.	0.69
M..24	30.01	63	72	54	73	59	66	N.W.	W.	19	9	C.	C.	
T..25	30.05	66	75	56	65	85	75	W.	S.E.	8	12	C.	O.	0.09
W.26	29.72	77	91	63	76	71	74	S.W.	S.W.	10	14	F.	O.	0.08
T..27	29.88	71	74	68	58	54	56	N.W.	N.W.	20	5	F.	C.	0.03
F..28	30.10	70	82	58	54	48	51	W.	W.	14	4	F.	O.	
S..29	29.96	69	72	66	78	88	83	S.W.	S.W.	13	10	O.	C.	0.02
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 29, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York . .	1,891,306	1084	619	36.72	8.91	28.17	.63	3.60
Chicago . .	1,438,000	759	493	66.56	4.94	60.67	2.47	2.99
Philadelphia .	1,115,562	599	314	35.02	9.86	29.24	1.36	1.53
Brooklyn . .	978,394	611	384	39.36	6.40	36.04	.80	2.72
St. Louis . .	560,000	—	—	—	—	—	—	—
Boston . . .	487,397	283	157	34.59	7.09	29.05	1.05	2.45
Baltimore . .	500,000	—	—	—	—	—	—	—
Washington . .	308,431	138	64	30.66	8.03	22.63	5.11	.73
Cincinnati . .	305,000	113	53	19.58	17.80	19.58	—	—
Cleveland . .	290,000	174	128	49.30	6.38	42.34	.58	1.74
Pittsburg . .	265,709	132	72	49.40	8.36	38.00	3.80	.76
Milwaukee . .	250,000	100	65	34.00	5.00	31.00	—	2.00
Nashville . .	87,754	34	10	20.58	23.52	8.82	8.82	—
Charleston . .	65,165	—	—	—	—	—	—	—
Portland . . .	40,000	8	2	25.00	—	25.00	—	—
Worcester . .	96,217	—	—	—	—	—	—	—
Fall River . .	87,411	70	52	58.22	5.68	56.80	—	—
Lowell . . .	87,191	78	54	47.36	3.84	47.36	—	—
Cambridge . .	77,100	33	21	51.51	12.12	42.42	—	3.03
Lynn	62,656	26	9	30.72	3.84	19.20	7.68	3.84
Springfield . .	48,684	27	16	51.80	7.40	33.30	—	3.70
Lawrence . .	48,355	—	—	—	—	—	—	—
New Bedford . .	45,886	32	23	46.95	6.26	35.82	4.16	3.13
Holyoke . . .	41,278	—	—	—	—	—	—	—
Salem	32,233	17	7	34.28	5.88	29.40	—	—
Brockton . . .	32,140	8	3	50.00	12.50	25.00	—	12.50
Haverhill . .	31,396	14	8	—	—	—	—	—
Chelsea . . .	30,264	15	7	20.00	13.33	20.00	—	—
Malden . . .	29,394	3	1	—	33.33	—	—	—
Newton . . .	27,556	—	—	—	—	—	—	—
Fitchburg . .	27,146	12	10	83.33	16.66	83.33	—	—
Taunton . . .	26,972	6	5	83.33	—	€6.66	—	16.66
Gloucester . .	26,688	5	3	60.00	20.00	—	—	—
Waltham . . .	22,058	8	3	12.50	12.50	—	—	12.50
Quincy . . .	19,642	10	4	—	30.00	—	—	—
Pittsfield . .	18,802	4	2	25.00	—	—	—	25.00
Everett . . .	16,585	5	3	40.00	—	—	—	—
Northampton .	16,331	4	1	50.00	—	50.00	—	—
Newburyport .	14,073	—	—	—	—	—	—	—
Amesbury . .	10,920	2	1	—	50.00	—	—	—

Deaths reported 4,437: under five years of age 2,606; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fevers), 1,906, consumption 343, acute lung diseases 214, diarrhœal diseases 1,602, diphtheria and croup 114, typhoid fever 50, whooping-cough 38, cerebro-spinal meningitis 34, scarlet fever 24, measles 20, malarial fever 6, erysipelas 5, small-pox 3, typhus fever 1.

From whooping-cough New York 14, Philadelphia 7, Pittsburgh 4, Chicago and Brooklyn 3 each, Cleveland 2, Boston, Washington, Nashville, Cambridge and Brockton 1 each. From cerebro-spinal meningitis New York 14, Chicago 6, Cleveland 4, Gloucester 3, Brooklyn and Marlborough 2 each, Philadelphia, Washington and Everett 1 each. From scarlet fever New York and Boston 4 each, Philadelphia, Brooklyn and Pittsburgh 3 each, Springfield 2, Chicago, Cleveland, Milwaukee, Cambridge and Everett 1 each. From measles New York 9, Philadelphia 4, Springfield 2, Chicago, Washington, Cleveland, Pittsburgh and Salem 1 each. From malarial fever New York and Brooklyn 2 each, Philadelphia and Fall River 1 each. From erysipelas New York and Brooklyn 2 each, Pittsburgh 1. From small-pox New York 2, Philadelphia 1. From typhoid fever New York 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,322,429, for the week ending July 22d, the death-rate was 25.1. Deaths reported 4,866; acute diseases of the respiratory organs (London) 200, diarrhœa 1,126, measles 129, diphtheria 88, whooping-cough 83, scarlet fever 64, fever 44, small-pox (London 10, West Ham 5, Oldham 3, Bradford 2) 20.

The death-rates ranged from 12 7 in Bristol to 41.6 in Preston; Birmingham 24.6, Bradford 21.4, Croydon 20.6, Leeds 26.2, Leicester 31.3, Liverpool 34.9, London 22.5, Manchester 32.6, Newcastle-on-Tyne 23.0, Nottingham 27.4, Portsmouth 23.4, Sheffield 29.7.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 29, 1893, TO AUGUST 4, 1893.

MAJOR ALFRED A. WOODHULL, surgeon, U. S. Army, is granted leave of absence for one month and fifteen days, on account of sickness, to take effect on or about August 15, 1893.

Leave of absence for two months, to take effect about August 10, 1893, is granted CAPTAIN EDWARD C. CARTER, assistant surgeon, U. S. Army.

CAPTAIN WALTER D. MCCAW, assistant surgeon, is relieved from duty at Camp Pilot Butte, Wyoming, and ordered to the Presidio of San Francisco, California, for duty.

CAPTAIN RICHARD W. JOHNSON, assistant surgeon, will report on or before August 6, 1893, to the commanding officer Fort McHenry, Md., for temporary duty at that post during the absence of CAPTAIN CHARLES B. EWING, assistant surgeon.

PAN-AMERICAN MEDICAL CONGRESS.

SECTION ON PATHOLOGY.

Meeting: Washington, Sept. 5, 6, 7 and 8, A. D. 1893.

One session will be devoted to a formal discussion on the subject of Cancer, to be opened by Dr. Wernicke, of Buenos Ayres, and as co-referee, Prof. Allen J. Smith, of Galveston.

Another session will be devoted to Yellow Fever, the discussion to be opened by Drs. Acosta and Grande, of Havana, Cuba, and as co-referee, Dr. A. J. Amadeo, of Puerto Rico, Honorary President.

One day, two sessions, will be devoted to Practical Demonstrations.

JOHN GUITERAS, M.D., Philadelphia, Pa., *Executive Pres.*
DAVID INGLIS, M.D., Detroit, Mich., *English-speaking Secy.*
L. F. CRIADO, Brooklyn, N. Y., *Spanish-speaking Secy.*

SOCIETY NOTICE.

AMERICAN DERMATOLOGICAL ASSOCIATION. — The seventh annual meeting will be held at the Hotel Pfister, Milwaukee, Wis., September 5, 6 and 7, 1893.

GEORGE T. JACKSON, M.D., New York, *Secy.* and *Treas.*

RECENT DEATHS.

RICHARD H. SALTER, M.D., M.M.S.S., died at the Massachusetts General Hospital, August 4, 1893, aged eighty-six years. He graduated in 1831 from the medical department of Yale University. He was surgeon of the First Regiment of Massachusetts Volunteers, and did much toward raising and equipping the regiment at the outbreak of the Rebellion.

H. C. COOPER, M.D., died at Woodbridge, N. J., recently, aged sixty-four years. He was a nephew of Peter Cooper, and a graduate of the College of Physicians and Surgeons, N. Y. He served in the Rebellion, and was a prisoner for a time in Libby Prison.

ROBERT FOSTER DILL, M.D., Professor of Midwifery in Queen's College, Belfast, died July 20th, aged eighty-one years.

BOOKS AND PAMPHLETS RECEIVED.

The Outlook for Medicine. By Bayard Holmes, B.S., M.D., Chicago.

Tubal and Peritoneal Tuberculosis. By Reuben Peterson, M.D. Reprint. 1893.

Faux Rétrécissements de l'Urèthre. Far le Dr. Reliquet et A. Guépin, Interne des Hôpitaux. Paris: Aux Bureaux du Progrès Médical. 1893.

Lectures.

LECTURES ON SURGERY.[1]

BY DAVID W. CHEEVER, M.D.,
Professor of Surgery in Harvard University.

XIII.

DISLOCATIONS.

You recognize a fracture by crepitus and mobility, and by the fact that it will not stay in place after we have drawn it back into position; and, in gross terms, we recognize a dislocation by the fact that there is no crepitus, that it is stiff rather than movable, and that it does stay in place, if it is replaced into its proper position.

When a bone is thrown out of its position by some external violence, it makes no matter what, sometimes by a direct blow, or by a fall, or by a severe strain of the muscles, there are two obstacles which prevent its reduction. One is the painful and rigid contraction of the muscles, which pull upon the bone in its new position, and prevent it from going back; and the other is the ruptured fibres of the capsule and ligaments around the joint. This last impediment must vary a good deal. For instance, in a strictly encapsulated joint like the shoulder, and extremely movable joint, the bone slips out and goes through a rent in the capsule and rests in some new location. On the other hand, when the head of the thigh-bone happens to be thrown out of the acetabulum, it has two powerful tendons, so to call them, which resist reduction. One is the so-called ileo-femoral ligament, or Y ligament, described by Dr. Bigelow, which gets wound around the bone in various directions; and the other is the tendinous portion of the obturator internus muscles, which is more nearly a tendon than a muscle. These two forces prevent the bone from slipping back into place. Now in old times all these obstacles had to be overcome by direct violence; and hence the use of traction and the pullies. In a moderate case, the patient was held strongly, and the surgeon and assistants having put on what was called a clove-hitch on the arm or leg, pulled and pulled until the muscles were tired out, and the ligaments, which were in the way, were ruptured. The fibrous tissue was ruptured, and the bone finally was got back into its place. The more they pulled the harder the muscles resisted. Agony, of course, was inflicted on the patient. The spasmodic contraction grew harder and harder; and it was sometimes a matter of a half-hour to an hour, and sometimes several hours, before the patient's nervous force was finally exhausted, the muscles worn out and the bone got back into place.

The introduction of anæsthetics, besides producing profound sleep and unconsciousness to pain, is also found to relax the muscles just as they are relaxed in death; hence the giving of ether or chloroform to a patient, after they are profoundly narcotized, obviates entirely the muscular resistance, and that great obstacle is out of the way. There still remain the torn capsule, ligaments, fibrous bands, to strongly resist reduction; and these were, until quite recently, overcome by force; and the patient having been etherized, then traction was used. Sometimes even the pullies were employed with ether to force the fibres apart, and to let the bone spring back into the socket. Latterly, however, it has been found that this resistance also can be overcome without violence, by manipulation, bending, untwisting the opposing fibres, and thereby letting the bone slip back into the socket.

The reduction of dislocations now turns upon two points, — profound anæsthesia, and what is called manipulation, that is, tipping the bone about so that it will glide back into place, and get out of the folds of fibrous tissue which are embracing it. That marks the great distinction between the treatment of dislocation nowadays, and that in former times.

On account of difficulties of diagnosis it not infrequently happens that dislocations are not discovered; and the patient, at first thought to have a blow and sprain, is afterwards found to have a bone out of the socket, weeks or sometimes months, after the injury has been inflicted.

What happens if the bone remains always unreduced? Nature then alters, in the first place, the socket. It is no longer of any use; and it is filled up and changed by the deposits of new plastic material and bone, and becomes smoothed off, in time. Meanwhile the bone rests out of the socket, in some false position, upon another bone, or among the muscles. There nature gradually hollows out a new socket. A rim of bony tissue is built up around the head. A species of false synovial membrane is formed; and what is called a new, or false joint is made, to accommodate the movements of the part. It, of course, is never so good as the original joint; but it is, in many cases, a very fair substitute for it. This is especially true of the shoulder. Now the articulation of the humerus with the scapula can hardly be called a ball-and-socket joint. The head of the humerus plays almost upon a plane surface. There is no socket; and when this bone is thrown out and lodges in a new position under the coracoid, or in the axilla, the head rests in the soft parts, a species of synovial sac is formed, and a very fair subsequent use of the arm is had. On the other hand, when the femur is thrown out, nature forms gradually a new socket and places a bony rim around it, so that with great shortening and great inversion, the patient still has considerable power of moving the limb. Seeing that nature does this, it is a question whether we should attempt the reduction of dislocations after a considerable time has elapsed from the first injury. This question turns upon several points. We know, in the first place, that if we do not touch them, nature will patch up the injury to a certain degree, and that the patient will get a more or less useful limb. The question of attempting to reduce an old dislocation turns then upon two important points. One is whether, if we succeed, we can give a much better limb than nature would make if it were left alone; and the other is, what additional risk we shall put the patient and his limb in, if we attempt a forced reduction after a considerable length of time.

No exact rule, I think, can be laid down for the proper conduct of the surgeon in such cases. It must depend upon the joint; upon the individual patient; upon his age; upon his idiosyncrasies; and, the chief factor of all, upon the length of time that has elapsed since the injury was first received. It is obviously easier to make an attempt to break up adhesions if the humerus is thrown out of the socket, than it is in the case of the thigh; consequently, successful attempts

[1] These are unwritten lectures printed from the stenographer's reports. Verbal corrections are made in revision, but no rhetorical changes. They were delivered to the third and fourth classes as part of the regular course.

at reduction after old dislocations of the shoulder-joint are much more numerous than after dislocations of the hip. Unless the femur can be put back pretty soon after the injury is received, it becomes almost impossible to do it; and the question arises then, whether the division of the muscles and fascia, or section of the neck of the bone, may not be preferable to attempting reduction of the head of the femur to its natural place, by force.

What are the risks that we run in trying to reduce, at a late day after the injury? In old persons, breaking the bone. That is very common. Breaking the humerus, or the neck of the thigh-bone, if we attempt to reduce them. Then we have converted a dislocation into a fracture of the neck; which perhaps would not unite if we tried to make it; which we should better leave, and let it become a new false joint, just as it does in fracture of the neck in very old people, of itself.

More important than this is the injury, especially in the upper extremity, which is liable to be inflicted on the vessels and nerves which are pressing against the head of the bone when thrown out of the socket. Of course, in the normal state the large veins, nerves, artery pass down a little out of the way of the bone; but let that be thrown out, and vessels and nerves are compressed. Neuralgic pain is the consequence, and great swelling of the arm. If the bone remains in this position, nature accommodates herself to it, and the pain gradually goes away and the swelling subsides; but if, in the case of an old dislocation, we etherize the patient, seize the arm, and attempt to get it back into place, it can only be done by first circumducting it in various directions with a good deal of force, and then trying to pry it up into the socket. By so doing we run great risk of injuring the veins and nerves, and producing a neuritis, if nothing more; of not very infrequently rupturing the large axillary vein; and occasionally plugging, if not tearing, the artery. It is quite common, in attempting to reduce an old dislocation of the shoulder, to have the pulse lost at the wrist, and to have great swelling of the part below for some days after the reduction has been successfully accomplished; and if it is not easily and successfully accomplished, and if a long period of circumduction and breaking up has to be gone through before the attempt is desisted from, occasionally the vessels are so far injured that they fail to recover; the limb mortifies; amputation at the shoulder-joint is the only resort to save the patient's life; and the result is much more disastrous than if he were left alone. I do not mean to say that we should not attempt to reduce any old dislocation. We should take these things into careful account; the number of weeks it has been out; the age of the individual; how much nature will accomplish in such a joint if left alone; and the chances of injuring vital parts if reduction is attempted. The humerus has been put into place, many times, after sixty and seventy days; after eighty or ninety days it usually fails; and in old people the attempt has frequently sacrificed the arm. The femur, as a rule, will not stand attempts after so long a period; and unless dislocation of the femur is reduced within the first month or six weeks, I do not think there is very much prospect of getting it back into position. Of course, there are exceptional cases, where you read of brilliant success at an unexpectedly late period; but bear in mind that all these exceptional cases merely illustrate, and prove by their rarity, the more common rule, that the bone cannot be got back easily and safely after a certain length of time.

So to review, very briefly, we have these important points which govern every dislocation: We now can overcome muscular resistance by ether, and overcome ligamentous resistance by manipulation. We may attempt reduction of old dislocations. If we fail, we may still console ourselves with the belief, that a tolerable joint will be got by the efforts of nature, with the bone in its new position.

Dislocation of the Lower Jaw. — The first dislocation we shall speak of is of the lower jaw. Partial dislocation of the lower jaw forward at the eminentia articularis is a very common occurrence, and the bone snaps back itself. This is the case with many young subjects, especially females, where partial dislocation of one side takes place with a creaking noise, during gaping, or opening the mouth wide. The patient rubs the jaw a little, and the bone snaps back into place. Under profound anæsthesia we can, with the thumbs behind the angle of the jaw, partially dislocate the bone forward upon the eminentia articularis, and throw forward with it the glottis, and prevent the swallowing of the tongue.

Complete dislocation of the jaw forward over the eminentia articularis, up into the temporal fossa, puts the mouth into a peculiar and characteristic position — wide open, and the chin thrown out a considerable distance beyond the upper jaw. Dislocation of this kind on one side, of course, makes a peculiar deformity. The common thing is to have both thrown out.

Reduction is easy. The chief thing to guard against is the mutilation of the surgeon's fingers in making the reduction. It can be reduced by putting both thumbs inside of the jaw, pressing the ramus down and back, and it will slip up into place. It is thrown out over the eminentia articularis, and you push it down and it will glide back into place. Previous to doing this some firm substance should be put into the mouth so that the jaw cannot shut on the thumb of the surgeon while making this manipulation; or the fingers can be guarded with something to prevent cutting by the teeth. Perhaps it is not worth while to delay longer on this. It is not common. It is almost impossible to fail to recognize it. It is easy of reduction.

Dislocation of the Clavicle. — Dislocation of the clavicle is rare. If it occurs, the common form is a dislocation of the acromial end upwards, with rupture of the ligaments. A rarer occurrence is dislocation of the sternal end of the collar-bone. All these dislocations are easy to recognize, can hardly help being seen. It is very difficult to press the bone back into place, and almost impossible to keep it there. The only one of consequence, as regards endangering life, is dislocation of the clavicle backwards behind the sternum, when it presses on the pneumogastric and on the trachea, and leads to dyspnœa and to severe symptoms. That accident is extremely rare. Something must be done to relieve it; and the most practical thing would seem to be to divide the fibres of the sterno-mastoid muscle subcutaneously, and endeavor to press the bone back into place. Failing of that, I suppose a resection of the end of the collar-bone, with antiseptic measures, would be proper and justifiable.

Usually dislocations of the sternal end are upward and forward, and do not entail any injury to the parts in the throat, but entail deformity, and subsequent bad use of the arm.

We try to force the bone and keep it back in place by strapping and pads, and especially by having the shoulder drawn back as far as possible, to draw the collar-bone out. Treatment is to be continued four to six weeks.

The ordinary dislocation of the collar-bone is of the acromial end upwards. The ligaments are ruptured, and the bone pulled up by the fibres of the trapezius muscle. And we find, on looking at such a patient from behind, a rigid line along the fibres of the trapezius, which is rather diagnostic of dislocation; and a projection, which, of course, would have to be diagnosticated from a fracture of the acromion process with drooping of the shoulder.

The treatment is about the same, whether it be fracture of the acromion process, or dislocation of the collar-bone. Crowd the arm well up, and strap the acromion down, and hold it in position four to six weeks. The results are fair. A little deformity frequently remains. The arm, however, becomes good and useful.

The other dislocations of the acromial end are rare. It is not worth while to waste much time on them. It may be dislocated a little forwards or backwards. The treatment would be about the same. Force the shoulder back; pad; and force the collar-bone down into place.

Dislocations of the Humerus.— Dislocations of the humerus are generally described as four in number. One is so extremely rare that we can eliminate it in speaking of treatment, and that is where the bone is thrown out of the socket and lodges back on the scapula. You may never see such a case. When it occurs the diagnosis is very easy.

The ordinary dislocation of the humerus is forward under the coracoid process, what is called subcoracoid. The bone comes out of its flat socket and slips forward, and a little downward, under the coracoid process, and rests between the coracoid and the ribs.

The other common dislocation is when the bone drops straight down and rests in the axilla.

Now in either of these two common forms, the roundness of the shoulder is lost. The natural shape of the deltoid muscle, instead of being rounded out, looks flat. If we seize the shoulder in this way, we are conscious of a vacancy, an empty space under the acromion process. We can compress the muscular fibres as we cannot do on the sound side. The arm appears to be slightly lengthened. Motion is lost. If we place the hand on the opposite shoulder and have it held, we cannot bring the elbow down in contact with the ribs, if the bone is out of the socket. We may force it down temporarily, and it springs up again. We can compare that with the sound side; and find that it is perfectly easy to have that laid down in its normal position. The loss of roundness of the shoulder; loss of mobility; loss of function, of course; and inability to approximate the elbow to the side, are the important points. In addition to this, if dislocation of the humerus happens to be downwards into the axilla, if we raise the arm from the side, and pass the hand well up into the axilla, we always find the head of the bone there. If there is any doubt, we can compare with the sound side; and can hardly fail to find projection downwards of the head of the bone. If there is subcoracoid dislocation, we can feel the head of the bone under the fibres of the pectoral muscles.

Obstinate abduction of the arm from the side; loss of motion, and disability, are common to the two forms of dislocation.

The patient having been etherized, and the muscles all relaxed, the obstacle to reduction would appear to be to get the head back through the capsule, through the rent by which it went out. In many cases this appears to be very easy indeed. Ether having been given, with a little traction and manipulation, the bone frequently slips back into place. Various manœuvres are contrived for that purpose. One secret in reducing dislocations of the shoulder is to render the scapula immovable; because if that moves with the humerus we lose all power of reducing the head. The scapula is rendered immovable by a strong bandage put around it and held by an assistant with great firmness. If that is not sufficient, additional immobility can be gained by applying some heavy adhesive plaster over the scapula, and drawing on the ends of that. The scapula secured; the arm is got back into place by various manœuvres. If, as is usually the case, it is in the axilla, then if the arm can be drawn down and the head forced up from below, it is easily pried into place. That is done by the surgeon's foot in the axilla, who sits beside the patient, draws upon the arm, and presses the head of the bone back into the socket. If this fails: having the scapula held, and drawing firmly off in the longitudinal direction frequently gets it into place. If this fails, the patient is etherized and placed upon the floor, and the foot of the surgeon is placed upon the shoulder, and the arm seized and drawn directly upwards, and that frequently succeeds.

Then there is the method called Kocher's, by which the arm is held firmly in to the side, and the bone rotated out and lifted into the socket. There is rarely a failure in one of these methods. Sometimes one succeeds a little better than the other; but the simpler one of pressing with the foot in the axilla is frequently successful. We are entirely sure that the bone goes in by hearing it, or feeling it, — by hearing a distinct snap when it goes in.

That is all the treatment. The trouble is to prevent it from dropping out. The capsule has been badly lacerated, and the joint is really no joint at all. It drops out very easily unless taken care of. The motion by which it will drop out is in lifting the elbow away from the side; hence, in the subsequent treatment, we must take great care to keep the elbow in to the side by a body bandage, and to put the forearm in a sling. With the humerus approximated to the ribs and the elbow supported, it is impossible for the head to drop out. That should be continued about a week, and then the arm put in a sling only. In some cases, where there have been repeated dislocations, it is a good plan to fasten an elastic around the arm and to the side, which prevents outward movement for many weeks.

It is a long while before the adult recovers full use of the shoulder. In lifting the arm to the head, or in making the motion of trying to put on a coat, it is long before either can be done without pain.

All dislocations are accompanied by great swelling, more so than fractures; consequently, after the injury is reduced, subsequent treatment should be very gentle. No very hard bandages should be put on. Frequently, evaporating lotions or leeches may be called for, and tight bandaging will not be borne. After the part has recovered, and the patient is left to himself, the

use of the arm may be much improved by gentle manipulations, massage, liniments, warmth, — agents of that class.

What we have to dread in any old person after dislocation is the chronic rheumatic arthritis that may be set up in the joint; and we cannot always predict that they may not afterwards have some stiffness or roughness of the joint, although the part may be perfectly restored to place.

Dislocations of the Elbow. — The elbow is a complicated joint, and the great point is this, when it is dislocated and you treat it, to be sure that both bones are back into place. It is very easy to appreciate, if the ulna is out, when it comes back into place with quite a loud snap. The joint is locked again, and the motions of flexion are restored and the symmetry of the arm; but the head of the radius is a small bone, its motions are peculiar, and it may not be perfectly reduced; and if it is overlooked, it is disastrous to the future use of the joint.

The books make a great many divisions of dislocation of the elbow. They are not, however, of very much importance. They are called backwards and inwards and backwards and outwards, etc., but, practically, they are all backwards, and more or less turned from side to side. The whole treatment consists in getting both bones back into position. The patient having been etherized, we go through the motions of having the fulcrum applied at the bend of the elbow, the arm steadily held, and the forearm first extended, and then brought up forward; and then, if we have restored the ulna, we may carefully look for the position of the head of the radius, and endeavor, by prying, pronation, supination, flexing and extending, to get that back into its normal position.

The diagnosis of dislocations of the elbow, of course, turns on the relative position of the three points, the two condyles and the olecranon, that we mentioned in speaking of fractures just above the elbow-joint. If they are in their normal position compared with the other arm, it cannot be dislocation; it is probably a fracture. If the ulna is drawn far out of its normal position as regards the condyles, then it is a dislocation. Of course the final test is in getting the arm in place and seeing whether it will stay. If it will, it is dislocation without fracture.

In all healthy subjects, and especially in young subjects, dislocation of the elbow is not followed by impaired use of the joint. It takes time, but motion is generally perfectly restored. It is not desirable to keep splints on too long. I think that is quite an important point. You must see in a joint so firmly locked together, that if it is once put back into place it is not very likely to get out again, and a confinement for a moderate length of time is all that is necessary; and after the synovitis is subdued, it is better that the patient should begin moderately the use of the arm. Cases have occurred, occasionally, in which, through fear of using the arm too soon, it has been tied up too long, and the consequence was that a simple synovitis has been converted into fibrous anchylosis; and then both physician and patient may be at a loss to know whether there had been a fracture or not; whether it would be safe to move the arm, and whether it would ever recover its mobility.

Very careful diagnosis from fracture. Very careful reduction of both bones back to their perfect position; then a short treatment afterwards, with the arm on the internal angular splint, and a sling; the back of arm uncovered, so that we can apply evaporating lotions or leeches; no tight bandaging being used.

Dislocation of the Wrist. — Dislocation of the wrist is almost unknown. Few people have ever seen one. It is accompanied with fracture, — fracture of the radius. Fracture of the radius and dislocation of the wrist, or Colles' fracture, is common. Dislocation of the wrist pure and simple is extremely rare. Of course, I would not include in this statement those cases of compound fracture where, from severe blows and laceration, individual bones of the wrist may be thrown out of place; but dislocation of one row of carpal bones from the other, or of a row of carpal bones from the articulation with the radius, is extremely rare.

Treatment would be obvious and simple. Draw it back into place and confine it on splints, and gradually use passive motion.

Dislocation of the Thumb. — Dislocation of the thumb, at the joint where the phalanx joins the metacarpal bone, is recognized as an extremely annoying dislocation. It is complicated by the fact that there are two little sesamoid bones; and when the thumb is thrown out, the phalanx goes down into the palm and gets entangled in the tendons. Make a fulcrum of your own left thumb under the joint, then pull the patient's thumb directly forwards, and then force it back beyond a right angle. It is difficult of reduction, and in some cases requires subcutaneous section of some of the fibres. It must never be allowed to remain out of place, because it does not give a good result in its false position; and, rather than leave it, we should divide the tendons, or even resect a portion of the bone and push it back into its place, and treat it afterwards as an excision, rather than leave it in a false position, where the thumb is practically useless and painful.

Dislocation of the fingers can be reduced by extensions and prying backwards.

Dislocations of the Hip. — They are four, of which one is excessively rare. Two are the common ones. These two which are common are merely modifications of each other. The head of the bone may go out of the socket and directly upwards and backwards upon the dorsum of the ilium, in which case it is called a dislocation on the dorsum. As a modification of that, it may not go up quite so far, may slip out and drop a little lower down into the sciatic notch. Dislocation into the sciatic notch and dislocation on the dorsum are practically the same thing, except in the amount of shortening. On the other hand, it may drop out and go directly down into the thyroid foramen, in which case the limb is a good deal lengthened instead of shortened. In very rare and exceptional cases it is thrown out and goes up upon the pubes, and rests either near the anterior spine, or upon the pubes itself. That, however, is excessively rare.

The ordinary dislocation in a strong person, who receives a violent injury, is dislocation upon the dorsum. Now this is so marked in its symptoms that it should hardly be overlooked. The limb is shortened from one and a half to two and a half inches, at once. There is not gradual shortening. Obstinate inversion of the foot to an extreme degree takes place, and the patient cannot in any degree turn it out. We have somewhat the characteristic appearance of a patient with old hip disease and dislocation on the dorsum,

which you are familiar with in that disease. If the patient is thin you may feel the head of the bone upon the dorsum by manipulation and examination; but if the patient is very fat and large, it is difficult to feel it under such a dense mass. On the other hand, we have two to two and a half inches of shortening, extreme inversion, total loss of motion about the part, and the history of a violent injury. This injury has to be of a peculiar character; and the blow to knock the bone out usually has to be received on the back of the trochanter, in some way, so that the moment the bone is knocked out and passes over the edge of the socket, the muscles seize it; and in ordinary cases pull it directly up; and in less violent cases pull it back; and, in exceptional cases where the blow is received from above downwards on the trochanter, it is conceivable that it may fall directly down into the thyroid foramen.

Great weights and heavy bodies striking the nates and side of the trochanter from behind are the usual causes of dislocation. The falling of timbers is a cause. I remember one case in which the cause was the falling of a sign from a building. The caving-in of earth occasionally, though that is more apt to make a crushing of the pelvis. If the bone is thrown out of the socket into the sciatic notch, the shortening is about one-half as great; the inversion is just the same; but the foot is turned over the toes of the opposite foot, instead of over the dorsum. Total loss of function, and the other signs, are the same.

If, by any chance, the bone is knocked down into the thyroid foramen, it is lengthened and turned outwards and partially flexed, and is very characteristic in its appearance. If thrown up upon the pubes, we have shortening, but the toes usually turned more or less outwards, and partial flexion and abduction occur.

Of course, profound etherization is the first measure. Then the patient had best be treated on the floor, or some firm place, low down, where the surgeon can stand over him. A thin mattress or blanket spread on the floor is sufficient. It is essential here, in manipulating to reduce the dislocation, that the pelvis be held still; just as in trying to reduce a dislocation of the humerus, the scapula should be held still. This is to be done by an assistant kneeling and compressing the rim of the pelvis firmly on both sides, while the surgeon makes his manœuvres. The pathological phenomena of dislocation upon the dorsum, or into the sciatic notch, are about the same. The muscles are relaxed by ether; but the Y-shaped ligament is wound about the head of the bone, and the bone will not go back until it is relaxed and unwound; hence bend the thigh gently upwards and turn it in towards the abdomen, and then the surgeon takes the lower leg as a fulcrum, and rotates the head out, and lifts it into place. This generally succeeds the second time, if not the first. Flex, adduct, abduct, rotate and lift, is the brief rule.

It occasionally happens, to the annoyance of the operator, that in reducing a dislocation upon the dorsum he fails, unlocks the ligament, gets the bone almost back into place, but instead of gliding into the socket it then slips down, and he has converted a dislocation upon the dorsum into a dislocation in the sciatic notch. In that case he has to repeat his manœuvres, and lift more forcibly over the edge of the socket.

In the dislocation into the thyroid foramen, the reverse manœuvre is to be brought about to unwind the ligament and get the bone to slip back into place. A great deal of time might be spent in illustrating this to you; but it is done so much better and more perfectly in Dr. Bigelow's monograph on the subject, that I advise you to look at his photographs, and the position of the ligaments, and the manœuvres.

Dislocation of the hip is rare. It is of immense importance to recognize it, and to reduce it within the first few hours after the injury; there are two common forms, dislocation into the sciatic notch and upon the dorsum, easily recognized by their peculiar deformity. Ether gives immense assistance in the reduction; and these manœuvres never, I think, fail of success in getting the bone back.

The subsequent treatment is important. In order to prevent the bone from slipping out again, everything being badly lacerated, it is best to make a splint of the other leg; and the knees should be firmly bandaged together, and the patient kept on his back. The patient should be kept in bed two or three weeks, before he is trusted to move the leg out. It will be swollen and painful; and it will take a good deal of time before he will recover the utility of the part. When he has partially recovered, rubbing, massage, etc., may be used. Here, again, in the elderly person, we may have to treat chronic rheumatic arthritis; but, on the other hand, it is fair to say that dislocation of the hip in the old person is not common at all; for the injury, if received, is almost sure to break off the neck of the femur, instead of putting the head of the bone out. Dislocations of the hip are most common in young persons; and in very powerful vigorous men, men in the prime of life, who receive violent injuries.

Dislocation of the Knee. — Dislocation of the knee is almost unknown, excessively rare. Pathologically it is common: but as a traumatic injury, unless accompanied by compound wounds, opening into the joint, or by breaking of the bone, it is extremely rare.

The semilunar cartilage, which is fastened on the head of the tibia and deepens the socket for each condyle, is occasionally displaced, with very serious consequences; and it is best, perhaps, to allude to that a little more at length. The patient feels something slip about the knee; tries to manipulate it and get it back into place, and finds he can do everything except straightening. In addition to that he may notice a little thickening or projection just at the line of the joint. It is a displaced semilunar cartilage. It is pushed out over the edge of the tibia and caught in the joint, so to speak. If not recognized, it stays there. It is practically incurable. Nature accommodates herself to the new condition; and the patient is left with a partial stiffness of the knee, and inability to make perfect extension.

It is important to be recognized; and can be readily cured, if recognized. The patient should be thoroughly etherized; the leg flexed far back, and snapped back into place with extension; the semilunar cartilage, in the large percentage of cases, will slip back into place. Then keep the limb perfectly straight on a ham-splint; and later, begin to use passive motion to restore the joint. It is a quite common accident, and requires care in its treatment.

Dislocation of the Ankle. — The ankle can hardly be dislocated without fracture of one, or the other, of the sides of the mortice which hold it in. Fracture of the

fibula, with rupture of the internal lateral ligament, makes dislocation outwards; and the treatment to reduce the fracture, and set the parts, reduces the dislocation.

Dislocation of the Astragalus. — Occasionally the astragalus, which lies between the tibia and os calcis, is knocked out of its position. You can see that it must be a very peculiar injury to do it. Usually, the patient falls from a height, and alights upon the edge of something like a brick or stone, and strikes in the arch of the foot. In that way, occasionally, the astragalus is pried out of place. The important point to speak of in this connection is not the diagnosis. That is very easy, for the parts are superficial. By manipulation, we find that there is no crepitus and no fracture. The important point to speak of is the excessive difficulty of reducing this; and the disastrous effects, if left unreduced. So that after the patient has been etherized and attempts at reduction fail, it is considered better to excise the bone, rather than leave it in its false position. Possibly, cutting down to excise it, and dividing some fibres, may enable us to slip it back into place. But if that cannot be done, it had better be excised, and the cavity allowed to fill up; and with a shortened leg and a shortened foot, the patient will usually get along well. On the other hand, if the bone is left out of position and attempts at reduction fail — I have seen several cases — and, in fact, the universal testimony of surgeons is, that you have a very useless foot, and also a very painful foot. The patient walks lame, and with extreme difficulty. He is liable to ulcerations and necrosis of the bone; has not motion of the joint, of course; and is crippled worse, almost, than with amputation of the foot. So that in this rare injury it is better to etherize; then to manipulate; then to make a few cautious incisions, and subcutaneously to divide some of the apparently resisting parts. If those things fail, it is wiser to really excise the bone than leave it in its false position.

A word more that I did not mention under fractures. You must be very careful not to mistake a fracture of the surgical neck of the humerus for dislocation. That mistake has been made a good many times. You may judge how disastrous it would be to go through the motions to reduce a dislocation, and apply force to a fracture, when there was really no dislocation at all. It all turns upon this, of course, whether the injury is below the head of the bone in the neck; or whether there is absolutely a vacancy between the acromion process and the head of the bone. That point settled, the rest of the diagnosis becomes easy.

It is hardly worth while to take up time by considering the extremely rare cases where fracture and dislocation coëxist. There are such cases. When recognized, the treatment is, of course, extremely difficult. We are usually advised to endeavor to put the fractured parts into position, and to allow time for union; and then make a cautious attempt to get the head of the bone back into place in the socket. It is obviously impossible to do this until we have some leverage and fulcrum on which we can push back. A very important question is, sometimes, whether it would not be wiser to excise the head of the bone, and leave the patient with an excised false joint, rather than to risk the loss of mobility which we shall get by having a fracture united, and the head of the bone lying out of the socket.

SECTARIANISM IN MEDICINE.[1]

BY E. R. CUTLER, M.D., WALTHAM, MASS.

DEFINITIONS.

I DO not find in any dictionary or book of synonyms what I consider a full definition of the word "sect"; and, while I do not claim to be superior to these authorities, I shall, nevertheless, define it to be "a subdivision within a larger body having an organization and a distinctive name and creed." The word "school" would be its nearest equivalent. This is well defined to mean the "followers of a teacher or the adherents of a system of doctrine." Compared with "sect" this word does not so forcibly carry the idea of organization and separation. It is too broad and dignified a name to characterize the small and diminishing differences among classes of medical men. Therefore, I shall use the word "sect" and its derivatives as the most convenient and appropriate ones. By sectarianism I mean devotion to the interests of a sect or party as opposed or superior to those of the whole body.

CAUSES OF SECTARIANISM.

That there are sects, and that there is sectarianism, in medicine requires no proof. That their existence is an opprobrium I think also needs no proof. I think they are a scandal and an anachronism. In medicine they have no right to exist. So far as we are sectarian we are unscientific. Science is knowledge. Sect, wherever found, is based on ignorance or imperfect knowledge. It may be sustained and perpetuated largely by prejudice and partisan feeling, but its ultimate ground is uncertainty about fundamental facts.

Sectarianism in religion is difficult to deal with, because it is founded upon events long past whose occurrence can never be absolutely verified, and upon documents which are claimed to be of a miraculous and divine origin. Such a claim at once puts them beyond the efficient application of scientific criticism. Neither history nor philosophy can ever furnish irresistible proof on these subjects. If they could, they would long ago have done so, for a multitude of the best equipped men have given themselves to the task since the beginning of the Christian era. The result has been confusion worse confounded; and the only possible hope of an organic union of Christian sects is in mutual concession. Whether such union will ever come about I will not venture to predict; but every one will admit that the present condition is one of reproach and weakness to the church.

Among religious denominations it appears to be true that the smaller the difference the greater the antipathy.

In medicine, however, there are no essential reasons for sectarianism. In the first place, minor differences do not constitute mutual incompatibility; in the second place, the art of healing depends upon facts and principles which are intrinsically capable of scientific and logical demonstration. I do not say that such demonstration has yet been achieved, but its achievement is not hopeless or so remote that the present generation may not set itself about realizing it.

The evil of sectarianism is specially flagrant in this land of liberty where each thinks and acts as he pleases up to, and often beyond, the limits of social safety, and where each is accustomed to consider his own opinions as good as those of any one else.

[1] Delivered before the Middlesex South District Medical Society.

An important reason why sects flourish so here is the comparatively backward state of scientific attainment.

These divisions are further promoted by the ridiculous multiplication of medical schools, which absolutely insures a low standard of knowledge among both teachers and scholars, as well as the propagation of personal and sectarian opinions unmodified by the corrective power of broad and varied instruction and experience.

It is claimed by the adherents of homœopathy that its comparative failure in most of the European countries is owing to the prevalence of the military and despotic elements in their governments, which are largely in sympathy with the old medical organizations; also that prejudice and tradition have a far greater power there than here. I think there is little force in this claim, as is shown by the fate of Koch's treatment of tuberculosis, a measure which it might almost be said was promulgated by the government itself. As you know, this was immediately subjected to the most rigorous tests and, almost in a twinkling, mercilessly strangled in its very birth-place, to the great chagrin of its author and the minister of public instruction. The great enemy of homœopathy is the scientific spirit which demands irresistible proof, and which is much more highly developed in Europe than in America.

EVILS OF SECTARIANISM.

(1) The profession is put in a discreditable light before the public. Of course, the public is mistaken in regard to the merits of the case, but this is not to be wondered at. Our profession itself is greatly to blame for the situation. Instead of recognizing the right of every man in it to hold and apply in practice any opinion which commended itself to him, it has adopted the ecclesiastical method of persecution. It has adjudged certain lines of theory and practice to be heresy, and has treated those adopting them in the true mediæval spirit with professional ostracism. Instead of patiently opposing error with argument and fact, which would certainly overcome it in the end, it drove the heretics from its fellowship beyond the reach of persuasion or conviction, thus virtually compelling them to set themselves up into sects which have now become so well organized and established that they occupy the position of very respectable rivals, and enjoy the support and sympathy of multitudes who care little for their special practice, but regard them as martyrs to our bigotry. Then, as if to insure them the full advantage of their position, the members of the profession very generally allowed themselves to be called by a distinctive and sectarian name, thus reducing themselves to the same ethical level. Thus, while the homœopath gloried in and profited by his title, the rest of the profession, in this country at least, found itself almost compelled to accept the ridiculous denomination of allopaths. Of course, this has been, especially of late, generally disallowed; but it is still freely used by the public, and even if we do insist on the somewhat more respectable title of "regulars," we are still looked upon as only a larger sect. Thus the whole vantage-ground of professional dignity and unity was lost; and what was really (at first) a simple diversity of professional opinion came perfectly naturally to be regarded by the people generally as a mere factional quarrel which resulted in the larger body turning out the smaller one for mere opinion's sake. I say the fault is not so much with the people as with the profession; and great numbers of medical men have not even yet become possessed of the idea that there is nothing reprehensible in any mere opinion or practice, but only in the public announcement of the same for the purpose of securing patronage, which is essentially quackery.

This distinction was never made clear enough.

The by-laws of the Massachusetts Medical Society specify as a qualification for membership preliminary to examination by the censors, "that he does not profess to cure disease by, nor intend to practise, spiritualism, homœopathy, allopathy, Thompsonianism, eclecticism or any other irregular or exclusive system generally recognized as such by the profession or declared so by the councillors of said Society."

I think the result of the application of the above rule and similar ones has been only to divide and weaken the profession, to obscure the real distinction between honorable practice and charlatanism, and to make the latter easy and respectable for thousands of men who could not maintain themselves in open and unrestricted competition. So I say the profession is put in a discreditable light before the people, who think it consists of two or more rival sects, one of which is bigoted and intolerant, while the others are just as good and just as successful, and ought to be encouraged and championed. Our attitude before the people is all the time explanatory and defensive, and our ethical point so fine that our would-be defenders cannot see it distinctly or maintain it heartily. The public naturally takes the side of the apparently persecuted party; and its material support goes with its sympathy, to the detriment of persons and institutions which need both. Nothing can appear more puerile to disinterested observers than personal animosity or mutually antagonistic organizations based on diversity of opinion or practice within a great profession. Of course, it should be said, on the other hand, that nothing can be more contemptible than truckling to lay prejudice, or appealing a strictly professional question, like that of therapeutics, to the public, as is done when a name or a creed are openly announced and patronage bid for thereby. The public, however, sees no harm in this; and as the general profession has failed, at least until lately, to make the point plain, it still suffers in public estimation.

(2) Under the policy of non-intercourse set up by us on this insufficient ground, mutual enlightenment, reconciliation and assistance are impossible. A free discussion within the profession would long ago have resulted in the total annihilation of Hahnemann's preposterous theories concerning the nature of disease and the power of drugs. They were promulgated before modern science even had its birth, and before its present powerful and precise implements of research had been even discovered. They can only survive, I think, where sectarian walls shut out the light.

On the other hand, it does not follow that because some of Hahnemann's theories were to the last degree grotesque and his practical conclusions thereby invalidated, therefore all that he and his followers believed is false.

The central idea of the system *similia similibus curantur* was not original with Hahnemann, and in the judgment of many competent and unprejudiced men still furnishes a clue to valuable means of cure, especially in functional diseases.

Homœopathic practitioners could not attain their present measure of success if their creed was wholly a delusion. It is idle to ascribe it entirely to their surreptitious use of material doses of medicine under allopathic or empirical indications or to the unaided powers of nature. The evidence of the firm belief of these men in their theory is furnished by their great enthusiasm for it, and the fact that they seldom or never abandon it. Furthermore, many items of strictly homœopathic practice have been approved by teachers like Ringer and Bartholow, and generally adopted by the profession.

That many medicines when given in large doses produce effects directly opposite to those of small doses is well known.

If a substance is shown by experiment to act specifically and powerfully on certain organs or tissues, it is reasonable, at least in the absence of better means, to try small doses of the same substance in disorders of those parts. Of course, this is simple empiricism, and a homœopath would smile with contempt at it; but nevertheless I believe it is the sole basis of a reasonable and successful homœopathic practice. Again, the minute subdivision of medicines, though sometimes carried by homœopathists to a monstrous degree of absurdity, may be a useful preparation for speedy absorption and therapeutic action, and is being utilized by our best pharmacists.

If these items of homœopathic theory and practice are of value, they ought to be in the possession of the whole profession; and the latter is the loser to the extent of their value, under the policy of non-intercourse.

Of the loss which accrues to the homœopathic practitioners themselves from lack of association with the rest of the profession, I need not say much. It is evident that their theories lead them away from pathological anatomy, from the physical diagnosis of disease and from its local, mechanical and surgical treatment, while the latter is widening its scope with great rapidity.

Think of the inroads which these and other lines of treatment have made, and are yearly making, into the territory of drug-therapeutics, even among homœopaths. Without going at all into detail, let me simply mention electrotherapy, hypnotism, massage, hydrotherapy, radical and palliative surgery — as applied within a few years to effusions into normal cavities; to obstruction and perforation of any part of the intestinal and biliary tracts and to many other abdominal lesions; to gonorrhœal, puerperal and tubercular infections of the pelvic organs and joints; to ectopic gestation; to tumors and injuries of brain and cord; to plastic operations on the cervix uteri and perineum; and to diseases of the eye, ear, nose, skin, etc.

Our homœopathic friends also certainly run great risk — to say the least — of being led by their faith in drug-treatment into serious and fatal mistakes and delays.

The difficulty in deciding when a case ceases to be a medical one and becomes surgical is often very great, and the decision critical. The temptation to continue medicinal treatment when the alternative is a serious surgical operation, is very strong, especially if one cannot perform the operation and flatters himself that he is guided by the one and only true therapeutic law.

The tendency to neglect the pathological diagnosis, not required for average homœopathic treatment, in favor of the easier symptomatic one is a serious weakness; for, if for no other reason, the whole vast subjects of the hereditary transmission of disease, and private and public prophylaxis against infections which destroy the larger part of the human race, depend upon it; and I believe that the time will come when a successful scientific treatment will depend on it.

In fact, I think it is evident that the homœopaths must of necessity be guided more and more in their treatment by the pathological condition of the patient, as discovered by physical examination, that is, by the objective signs of disease rather than by the patient's feelings, which constitute its subjective symptoms. These latter bear no constant relation to the former; so that if one is guided by them, he may be treating very diverse conditions or processes by the same remedy or, *vice versa*, applying entirely different medicines to the identical pathological process. This may be correct and successful homœopathic treatment, but it sounds highly irrational to the unsophisticated; and it seems certain that a really accurate knowledge of the pathology of disease, such as science is determined to seek and find, must create scepticism as to the value of remedies whose indication is sought in the patient's feelings. Now all the means of diagnosis are employed by homœopaths, and their use taught in their schools. The stethoscope, the thermometer, the microscope, the test-tube, the speculum, etc., as well as our unaided eyes and fingers, are all means of reaching a little nearer the essential condition than the patient's statements would carry us; and they tend to supplement or even supersede these and guard against erroneous conclusions unavoidable if guided by them alone.

True we have not penetrated into the secrets of the essential nature of the pathological, any more than the physiological process; but it is an enormous gain which bacteriology and chemistry and microscopy have already secured in that direction.

All these things must inevitably tend straight away from reliance on mere symptomatology; and our homœopathic friends cannot resist the tendency if they try. That they will necessarily use all these pathological gains of pure science is shown by the fact that they have always used such as they have had.

It seems to me that in these ways, narrow and sectarian views, especially when met by a supercilious opposition, are the source of serious loss to medical men of all persuasions.

(3) Useful legislation is prevented.

Suspicion and jealousy are easily aroused among the sectaries if any measure, State or National, is proposed by the non-sectarian part of the profession; they fear that it may in some way minimize their influence or antagonize their party interests. On the other hand, their factious insistence on the use of the highly and justly obnoxious sectarian title drives many high-minded men into an indignant and even arrogant refusal to have anything whatever to do with them. Thus effective co-operation for securing general legislation is prevented. I have been assured by a prominent lawyer that a bill to regulate medical practice and banish from the State the quacks who infest it in such numbers could easily be passed if the whole profession would unite in urging it.

The American Institute of Homœopathy adopted at a recent meeting a preamble and resolution reading as follows: "Whereas the creation of a single-man power in the person of a Medical Secretary at the seat of government is likely to interfere with the personal rights of both physicians and people, *Resolved*, that

the American Institute of Homœopathy disapproves of all efforts on the part of our National Congress to erect authoritative medical standards by the appointment of a medical health-officer in the president's cabinet."

I am by no means certain that the plan of establishing such an office is wise; but the above resolutions were evidently dictated by the fear that it might be used to the disadvantage of homœopathic practitioners.

It is, I think, pretty generally recognized that medical instructors should not have the power of licensing their graduates to practise, but that it should be vested in some central examining board. Such boards exist in some States; but they have failed of establishment in Massachusetts because the power of the quacks has been reinforced by the influence of medical men.

(4) Hospitals suffer.

In all that I have said there is nothing new. You are all familiar with these things; and, while I have long been deeply sensible of the unfortunate condition of the profession, I should probably never have written a word on the subject, or changed my personal attitude toward homœopathic practitioners except for one circumstance, namely, the acute phase of the trouble produced by the springing up of hospitals in our small cities. The bearing of these hospitals on professional relations is very direct; and a few words to this point will develop the special purpose of this paper. The small hospital, growing with the growth of the population around it, and adapted to its wants is, with us in Massachusetts, a new institution. It is a part of the general socialistic movement of the day. It is made possible by the great expansion of the surgical field, not only in traumatic but especially in pathological cases, by the rapidly increasing willingness of the people to enter it for treatment, by the service of trained nurses, by the great facilities it offers for the securing of aseptic conditions.

It sometimes begins its beneficent work with small or no endowment, and depends largely on the personal interest and effort of its friends; and, in order to thrive, it should have the undivided and enthusiastic support of all the people. They should all feel a pride in it as one of their cherished local institutions. All causes of difference and bitterness should, if possible, be removed from among those who should favor and help it. Now just here the homœopathic question comes to the front; and it must be squarely met, or evaded by some indirection. It has been met in different ways in different places. In the large cities hospitals have been established and carried on upon an openly partisan basis. This existence of mutually exclusive institutions is a discredit to the profession, a vexation to the public, and a loss to both; but as the means for it are forthcoming, it is steadily continued.

There are now forty hospitals expressly homœopathic in the larger cities of the United States. In sixteen of these places are also professedly homœopathic medical schools; and in all of them and many others are homœopathic medical societies.

These institutions place almost insuperable obstacles in the way of organic union of the profession in these cities. But in the small places these outward difficulties do not exist, and the local conditions call loudly for co operation. At the present time the tendency in such communities is steadily toward the explicit recognition of medical sects in the by-laws of the hospital.

To show how important this matter is, and how inevitably and rapidly it must become a vital concern to the whole profession, I shall cite the following facts and figures. I omit from consideration, be it understood, all the hospitals of Boston and a considerable number elsewhere which are limited in their scope or supported by large endowment. I include only small, general hospitals supported by the people about them. But of this class I have given all in the State of Massachusetts as far as I know.

These hospitals are initiating a new phase of professional experience. They are greatly helping to raise the standard of professional work. They strongly favor a laudable professional ambition and pride. They are making the rural profession to a degree independent of the city expert and specialist, without serious detriment, I believe, to the public health.

The advantage of service in the metropolitan hospitals and teaching in the metropolitan medical schools alone gives these experts their superiority. No doubt they will continue to maintain it by these means, and this is as it should be. We need them in cases of unusual doubt or difficulty, and we cheerfully recognize their ability to help and instruct us. But we do not need to send them all the plums; and we do owe it to our respective constituencies to spare them the expense of imported advice and skill as far as we can, especially when they are generous enough to furnish us with the means of doing our own work well and improving ourselves thereby.

I think that in trying to enlist the humanitarian impulses of the people on behalf of the inmates of the hospital we may possibly fail to think and say enough about the advantage accruing to the doctors, and to the community outside indirectly, in the cultivation of their skill and self-reliance by the local hospital. This advantage is indeed no trifling one, nor one to be kept out of sight or made light of.

Our profession ought to make the most of every means for its own elevation and improvement.

It ought to be such that the people would look up to it as a strong, united and influential body, able to instruct and lead in all matters concerning public health and education as well. It is far better for the people that the average of professional accomplishment should be high, than that there should be a small number of medical men head and shoulders above the rest.

Now I claim for the hospital that it is, or should be, one of the very important agencies for this general advancement of the medical profession, if all are allowed to share its advantages; or, on the other hand, it may aggravate and perpetuate invidious distinctions among classes and individuals if its privileges be limited to a few.

The hospital should be the pride of the profession, whose members should have free access to it for their patients and their work. There, at least, they should be ashamed to be guilty of negligence or slovenliness in diagnosis or treatment; there they should always find free and friendly assistance and advice; there they should see all those things done which could reasonably be expected of the local practitioners; and there should be made manifest who were most worthy of staff appointments. The hospital should be a sort of medical exchange.

The profession should be largely represented on its list of corporators, its trustees and all its working committees.

It should be understood that the doctors are capable — more so than any one else — of managing a hospital.

The hospital need not, and should not, assume the responsibility for the results of any cases except those treated by its staff; and, to protect itself, this latter should be small in numbers and composed of the very best men within reach. The staff should not monopolize the work.

Of course, they should receive no remuneration for their official work; but for all other work either they or other physicians should be paid by such patients as are able to do so after meeting the usual hospital charges. Very many cases go to the metropolitan hospitals because they can there secure the best attendance for nothing, to the loss of doctors elsewhere. On the other hand, many cases are treated at home, to their detriment, which would go to hospitals if the attending physician did not wish to retain his fee. Let him freely use the hospital to the mutual advantage of himself and patient, their financial relations being the same as before, except that the hospital must have prior claim. The one essential point is, let no man enter the hospital as a sectarian.

So much for Utopia. Now for Massachusetts.

(To be continued.)

Original Articles.

THE COMPLICATIONS OF SCARLET FEVER AS OBSERVED IN FIFTY CASES.[1]

BY HENRY JACKSON, M.D.,
Physician to Out-Patients of the Boston City Hospital.

THROUGH the kindness of Dr. Shattuck I had the opportunity of taking charge of the contagious service of the City Hospital last January. During this time 53 cases of scarlet fever were under my care for a part of their stay in the hospital, and many of them presented various complications, which offered a most interesting opportunity to study the various phases of this disease. The study of these cases was to me a source of much profit and interest; so that I feel a review of the month's work, with such conclusions as I can draw, may interest the members of this Society.

There is perhaps no disease whose course is more varied, or in which the possible complications may lead to more serious results, than scarlet fever. If the disease runs the usual course without any complications, it is mild in character, the only serious symptom being the prolonged desquamation, which demands absolute isolation of the patient on account of the danger of spreading the disease. Unlike measles, it is pretty satisfactorily demonstrated that the disease is most contagious during the stage of desquamation.

The cases under observation in January were of especial interest on account of the large number which presented serious throat lesions, as manifested by a membranous deposit in the pharynx or nose-pharynx: cases often spoken of as diphtheria complicating scarlet fever. But, as I hope to demonstrate to you, a careful clinical observation of these cases and a bacteriological examination as to their etiology proves that the membranous deposit seen in scarlet fever has no connection with diphtheria except a close anatomical resemblance, and even here there are, in many cases, well-marked pathological differences.

[1] Read at the Boston Society for Medical Improvement, April 24, 1893.

During the last seven years the following cases of scarlet fever have entered the City Hospital:

	Cases.	Died.
1886	42	2
1887	75	9
1888	93	6
The contagious service was opened in February, 1888.		
1889	42	0
1890	103	4
1891 to January 31, 1892 } with diphtheria,	137	6
	20	11

I give a summary of 53 cases, which I intend to report in detail as to the occurrence of various complications. They entered the hospital during the months of December and January. Where the history was obtained the eruption followed the onset of the first symptoms, as given below:

1 day	20 cases.
2 days	1 case.
3 days	1 case.

In three cases a membranous deposit appeared on the tonsils two days before the eruption. In two cases a membranous deposit appeared on the tonsil three days before the eruption. In one case, which a bacteriological examination showed was not diphtheria, the membrane was observed on one tonsil one day before the appearance of the eruption, though at this time there was a scarlet macular eruption on the hard palate.

Age of patients.

	Cases.
7 mos. to 2 years	3
2 to 5 years	15
5 to 10 "	20
10 to 20 "	12
20 to 30 "	3

Total, 53 cases. One-half the cases between 2 and 10 years.

Complications and Variations from usual symptoms.

	Cases.
Membrane in throat	20
Otitis media purulenta	9
Primary albuminuria (all with high temperature)	3
Nephritis later in disease	6
Abundant vesicular eruption in addition to usual scarlet rash	3
Lobar pneumonia	3
Widespread bronchitis and probably broncho-pneumonia, 3-5	
Elevation of temperature later in desquamation without any assignable cause	7

Desquamation was completed

Average (37 cases)	in 54 days.
Longest	in 70 days.
Shortest	in 32 days.

Mortality, 11 cases.

	Cases.
Septic naso-pharyngeal disease	8
Spinal caries (infant.)	1
Acute nephritis (uræmia)	1
Moribund on entrance (no history)	1

If we throw out the case of spinal caries, which died many weeks after recovery from the scarlet fever, and the case moribund on entrance, we have a mortality of 9 cases in 51, in all but one of which the death was the result of intense general septicæmia, secondary to a foul naso-pharyngeal disease.

Of the uncomplicated cases none were very sick and none died. The chief interest centres in the cases complicated by membranous deposit in the throat, 20 in number, and these I wish to give in detail.

CASES COMPLICATED WITH MEMBRANE IN THE THROAT.

Case I. A boy three years of age.

Time. Entered the hospital on the third day of the disease. The tonsils were enlarged, and on each was a well-defined gray patch; several small patches on the soft palate. The throat was clear in seven days.

Rash. The eruption was faint, and soon faded.

Complications. In the fourth week there was albumen in the urine and numerous casts, with many free blood-cells.

Result. Discharged well on thirty-seventh day. No septicæmia.

Case II. A boy fifteen years of age.

Time. Entered the hospital on the third day of the disease. The tonsils were enlarged; on each was a dirty gray patch.

Rash. Bright in color and well marked over whole body; high fever at first, with primary albuminuria.

Complications. None.

Result. Discharged well on seventieth day. No septicæmia.

Case III. A girl of nine years.

Time. Entered the hospital on second day of the disease. Both tonsils enlarged and covered with a thin gray membrane, which extended over the posterior pillars. On the fourth day the throat was practically clear.

Rash. A marked scarlet eruption.

Complications. In the fourth week there was a trace of albumen in the urine and a few casts of the hyaline variety.

Result. Discharged well on the fifty-sixth day.

Case IV. A woman twenty years of age.

Time. Entered the hospital on the third day of the disease. Tonsils enlarged, red, with prominent follicles; on the right tonsil there was a small gray patch.

Rash. Well marked.

Complications. None.

Result. Discharged well on forty-second day. No septicæmia.

Case V. A man twenty-three years of age.

Time. Entered the diphtheria ward. Tonsils swollen and red; on right tonsil several white follicular plugs, on the left tonsil a small white membrane and a small white patch on the left posterior pillar. In ten days the throat was practically clear. No rash.

Rash. On the second day a scarlet macular eruption appeared, which was followed by desquamation. In this case the question must of course be raised whether the scarlet fever was not a secondary disease implanted upon a preëxisting throat affection, but the eruption appeared so quickly that I am inclined to consider that the throat affection was but a complication of the scarlet fever, the eruptive stage being delayed.

Complications. None.

Result. Discharged well on the forty-fourth day. No septicæmia.

Case VI. A boy fifteen years of age.

Time. Entered the hospital on the third day of the disease. The tonsils were red and swollen, and on each was a patch of gray membrane. In four days the throat was practically clear.

Rash. Moderate; and on entrance, the second day of the rash, already fading.

Complications. None.

Result. Discharged well on the forty-second day. No septicæmia.

Case VII. A boy three years of age.

Time. No history obtained. There was a purulent discharge from the nose; the whole pharyngeal cavity was covered with a thick white tenacious membrane. The breath was fœtid.

Rash. The eruption was fading and desquamation was beginning.

Result. The child failed rapidly, and died on the fourth day after entrance. There was from the first a marked septic condition; pulse rapid and feeble; temperature high.

Case VIII. A girl seven months of age.

Time. Entered the hospital on the third day of the disease. Foul purulent nasal discharge. Both tonsils were covered with a thin, gray membrane; there were gray patches on the uvula and soft palate. Clear in seven days.

Rash. A faint macular eruption over whole body.

Complications. The purulent nasal discharge continued after the membrane disappeared from the throat. In the second week a double otitis media purulenta developed. In the fourth week there was a rapid rise of temperature, caused by a pneumonia of the left lower lung, and the child died in four days.

Result. Death from pneumonia on the twenty-fifth day.

There was a marked general septic condition from the first.

Case IX. A girl six years of age.

Time. No history obtained. Both tonsils enlarged, and on the right tonsil was a gray patch, which extended over the posterior pillar.

Rash. On entrance there was an intense scarlet rash; for two days there was a high temperature and slight albuminuria.

Complications. None.

Result. The patient was discharged well on the fiftieth day. No septicæmia.

Case X. A woman twenty-four years of age.

Time. Entered the hospital on the third day of the disease. Both tonsils moderately enlarged, and on each there was a thick gray membrane. On the fourth day the left tonsil was covered with membrane, which extended on to the anterior pillar. On the uvula and soft palate there were small patches of membrane. In four days the throat was almost clear.

Rash. Bright-red scarlet eruption.

Complications. In the second week the pulse was weak and irregular; the heart was not enlarged, — a systolic murmur at the apex. The unfavorable condition of the heart was transitory, passing off in a few days under absolute rest and small doses of digitalis. Convalescence was somewhat prolonged.

Result. The patient was discharged well on the fiftieth day. No septicæmia.

Case XI. A girl six years of age.

Time. No history. Membrane on both tonsils and uvula; patches of membrane on the soft palate.

Rash. Well-defined scarlet eruption. Purulent nasal discharge.

Complications. Throughout both lungs sibilant and sonorous râles, and in patches fine crackling râles, suggesting the existence of lobular pneumonia.

Result. Died in two days. Marked septic condition, with rapid and feeble pulse.

CASE XII. A boy thirteen years of age.

Time. Entered the hospital on the second day. An ulceration on the right tonsil and a small gray patch on the right side of the uvula, which had considerably swollen.

Rash. A moderate eruption.

Complications. None.

Result. Discharged well on the forty-second day. No septicæmia.

CASE XIII. A boy seven years of age.

Time. Entered the hospital on the third day. Both tonsils and both sides of the uvula covered with membrane. In seven days the membrane had disappeared.

Rash. Moderate in character, with a few vesicles.

Complications. In the fourth week otitis media left ear. A few days later acute nephritis developed, with marked diminution of the urine. Vomiting ensued, and he died in one week with uræmic convulsions.

Result. Death from nephritis, thirty days. No septicæmia.

CASE XIV. A girl three years of age.

Time. Entered the hospital in diphtheria ward. On left tonsil there was a patch about the size of a finger-nail. Three days later a scarlet rash appeared, with moderate rise of temperature. The late appearance of the rash of course suggested that the scarlet fever was a secondary disease, not associated with the primary throat lesion. Eruption slight.

Complications. In the fourth week acute nephritis with general œdema developed. Desquamation ceased on the fifty-sixth day, and she was transferred to the medical service on account of the nephritis which still existed. No septicæmia.

CASE XV. A girl two years of age.

Time. On entrance to the hospital she was desquamating. Both tonsils, uvula, pillars of the fauces and posterior pharyngeal wall were covered with a gray membrane. There was a foul purulent discharge from the mouth and nose. The edges of the nostrils and the lips were cracked, bleeding, and partially covered with scales. A bacteriological examination of the discharge showed streptococci and saprophytic organisms; no bacilli of diphtheria. The throat gradually cleared up, and her condition improved.

Complications. In first week otitis media purulenta. Fine bronchitis, probably lobular pneumonia.

Result. Discharged well on forty-second day. There was from the first a marked septic condition, as indicated by the rapid, feeble pulse, irregular temperature and the bad general condition.

CASE XVI. A girl of six years, sister of No. 15.

Time. On entrance to the hospital both tonsils, uvula and pillars of the fauces covered with membrane, which extended on to the posterior pharyngeal wall. Purulent nasal discharge.

Rash. A moderate macular eruption which faded in three days.

Complications. Dulness and fine râles in the right lower back. Coarse and fine râles through both lungs. On the sixth day double otitis media purulenta.

Result. Died on the seventh day.

There was a marked septic condition from entrance. Anatomical diagnosis from autopsy by Dr. Councilman: Acute bronchitis and broncho-pneumonia, acute spleenic tumor, acute endocarditis, acute nephritis, septicæmia from general infection of streptococci.

CASE XVII. A boy of seven years, brother of Nos. 15 and 16.

Time. Entered the hospital with the history of sore throat for three days. Three days previous his two sisters had entered the hospital, one with a fully-developed scarlet fever eruption and one in the stage of desquamation. On the hard palate was a bright red macular eruption as is seen on the day before the appearance of scarlet fever. The boy was bright and said he did not feel sick. On the left tonsil was a patch of membrane, and two small spots on the pharynx above the left tonsil. On the second day the membrane had spread considerably, covering both tonsils and uvula. In the afternoon a rash appeared, and the following day there was a bright scarlet, macular eruption.

A bacteriological examination on the day of entrance showed a growth of streptococci; no bacilli of diphtheria. On the sixth day the membrane still covered both tonsils and the uvula; on the tenth day the throat was practically clear.

Complications. On the eighth day pneumonia developed in the left lower back; four days later in the right lower back, and the next day, which preceded death, in the left upper front.

Result. Death on fifteenth day from pneumonia. On sixth day general condition septic with rapid, feeble pulse.

CASE XVIII. A girl, eight years of age.

Time. No history. On entrance both tonsils, pillars of the pharynx and posterior pharyngeal wall covered with thick gray membrane. Foul, purulent discharge from the nose.

Rash. Bright scarlet rash.

Complications. Râles throughout the chest.

Result. Death on day of entrance. There was a marked septic condition on entrance. Pulse very feeble and so rapid that it could not be accurately counted.

Anatomical diagnosis from autopsy by Dr. Councilman: Abscess and ulceration in pharynx; beginning croupous pneumonia; acute nephritis; acute splenic tumor; fatty degeneration of heart, liver and kidneys; general lymphatic hyperplasia; septicæmia from streptococcus infection.

CASE XIX. A girl of twenty-one months.

Time. Child had been sick four days. Membrane on tonsil, uvula and pharynx; foul discharge from the nose.

Rash. Dull red eruption on abdomen and thigh which spread rapidly.

Complications. None.

Result. Died on second day. Some retraction of thorax and voice hoarse to slight extent. Marked septic condition.

CASE XX. A girl, eighteen months old.

Time. On entrance a moderate macular eruption. Four days later a patch of membrane developed on the left tonsil and uvula; foul nasal discharge. In three days throat more clear. Rash became bright.

Complications. On the eighth day complete consolidation in the lower part of the left back, and death on second day with a gradually increasing dyspnœa. Septic condition.

RESUME OF TWENTY CASES COMPLICATED WITH MEMBRANE IN THE THROAT.

Age.	Cases.
Under 3 years	7
6 to 10 years	7
13 to 15 "	3
20 to 24 "	3

Time the membrane appeared, or was observed.

	Cases.
2d day of disease	2
3d " "	7
4th " "	1
6th " "	1
1 day before rash	1
2 days before rash	1
3 days before rash	1
Time not noted	6

In the last six cases it may be considered that in five the membrane appeared early in the disease as the following record is made as to the skin.

	Cases.
Intense rash	3
Moderate rash	1
Faint rash	1
Desquamation	1

Seat and Extent of the membrane.

	Cases.
Both tonsils, uvula and pharynx	4
Both tonsils and pillars of pharynx	2
Tonsils and uvula	3
One tonsil and pillar of pharynx	3
Both tonsils	2
One tonsil	2
Whole pharynx and nose	5

Duration of membrane in 6 cases where noted.

Average	6 days.
Longest	10 days.
Shortest	4 days.

Character of the eruption.

	Cases.
Faint, slight or moderate	9
Marked or intense	9
Fading	1
Desquamative	1

Desquamation completed, of 11 cases which recovered.

Average	54 1-2 days.
Longest	70 days.
Shortest	37 days.

Complications.

	Cases.
Slight albuminuria and casts in 4th week	2
Acute nephritis	2
Pneumonia	6
Otitis media purulenta	3
Parietal disease of the heart	1

Mortality, 9 cases.

	Cases.
Foul nasal discharge	7
Acute nephritis	1
Pneumonia	2

Marked Septicæmia, 8 cases, of which only 1 recovered.

The fatal cases were all markedly septic in general appearance from the first except one, and he died of acute nephritis with uræmia in the fourth week, long after the entire disappearance of the membrane, and apparently well-developed convalescence.

Until by the bacteriological investigations of the last few years the question was definitely settled that the bacillus of diphtheria was not found in the membranous deposit on the throat of scarlet fever, great difference of opinion existed as to whether this form of scarlet fever was to be considered as a mixed infection of scarlet fever and diphtheria. Henoch has always been the most prominent advocate of the theory that the membrane was but a local manifestation of the scarlet fever poison. An observation of the clinical phenomena presented by my cases gives a good example of the essential factors on which such an opinion is based.

A deposit of membrane on the tonsils or pharynx is by no means a rare complication. In most cases this membrane shows but little tendency to spread, and especially does not invade the larynx and trachea. The existence of this membrane, with the exception of the intensely septic cases, does not exert any material effect upon the course or prognosis of the disease. Paralyses are not observed. Eleven of my cases remained in the hospital an average of fifty-four days, and paralysis was not noted in a single case. The mortality of my cases was large, nine out of twenty cases, but a closer inspection of the cases shows that in seven there was a foul nasal secretion; the secretion was abundant, sero-purulent, somewhat bloody and excessively irritating as shown by the abundant excoriation about the edges of the nostrils; of seven such cases only one recovered. The other eleven cases in which the membrane in six was widely spread over the tonsils and uvula or pillars of the pharynx, showed no evidence of a septic condition, and the scarlet fever ran the usual course of a mild disease without complications. Otitis media was noted only in the fatal cases.

There is no marked anatomical difference between the pathological lesions as observed in diphtheria and the membranous deposit seen in scarlet fever; in special cases there may be no difference, and at best no factor is of sufficient importance or occurs with sufficient regularity to make a differential diagnosis possible. In the membrane of scarlet fever, the deposit is less firm, it tends to be rather pultaceous and cannot be stripped off in large pieces or strips as in diphtheria. Secondly, destruction of tissue by ulcerative or suppurative processes are more common in scarlet fever than in diphtheria.

In Loeffler's first article on the bacillus of diphtheria he describes the organisms found in five cases of membranous inflammation complicating scarlet fever; in four the bacillus of diphtheria was not found; it was present in the fifth case, but this was one in which the membrane appeared on the eighteenth day and invaded the larynx. Since this work of Loeffler many have sought for the diphtheria bacillus in the membrane of scarlet fever, but in vain. In almost all cases a streptococcus is found, which most observers describe as identical with or very similar to the streptococcus of erysipelas.

Booker has recently published [2] a report of the examination of pseudo-diphtheritic angina in scarlet-fever. In none of the cases where there was membrane did he find the Loeffler bacillus. In all he obtained a streptococcus which differed from the streptococcus of erysipelas essentially in that its vitality in culture media was short. In one of Booker's cases (Case 3) there was a membranous deposit on the tonsils on the second day of the disease and two days before the eruption of the scarlatinal rash. The organism found was similar to those found in the other cases. This case is comparable to two of mine, namely, Nos. 5 and 14, in which the membrane preceded the rash two and three days respectively.

In my cases bacteriological examination was made in four instances. In two I made cultures from the throat during life and in two Dr. Councilman made cultures from the throat and internal organs post-mortem. In the first case (No. 15) there was a marked septic condition, a foul nasal discharge, and the whole posterior pharyngeal region was filled with a soft pultaceous membrane. I found streptococci in the cultures but no bacilli of diphtheria.

In the second case there was a membrane on one tonsil and no rash. The result was the same as in

[2] Bulletin Johns Hopkins Hospital for October and November, 1892.

Case No. 1. In this case the rash developed in twenty-four hours. He gave a history of a sickness of three days, the chief symptom having been sore throat. The membrane was not due to diphtheria, it was not tonsillitis, and I think it fair to assume that in this case, and in Cases Nos. 5 and 14, the scarlet fever poison was the cause of the membrane while the eruption of the rash was deferred to a remarkably late period, the fourth day after the initial symptoms.

In the two cases examined after death by Dr. Councilman pure cultures of streptococci were found in the glands about the neck and in most of the internal organs. It is interesting to note that in one of the cases cultures from the kidney were sterile and no organisms were found in the kidney, though there was an acute nephritis, the acute inflammation having been set up by the toxines produced by the bacteria.

Pneumonia, lobar or lobular, was the immediate cause of death in six of the septic cases. Acute nephritis developed in two of the cases with membrane; one of the cases terminated fatally.

Otitis media was developed in three cases, all of which had a foul nasal discharge. But apparently the existence of the membrane was not an especially predisposing cause of otitis as it developed in six cases of 33 in which there was no membrane.

Pneumonia, lobar or lobular, was present in six cases: the same prevalence of this disease in septic throat cases of scarlet fever is noted by other observers. It is to be considered as the direct result of the general septicæmia which results from the streptococcus infection. In three of the cases the disease was lobar. Only one of these cases recovered, and that was one in which the essential disease was bronchitis though the existence of a few patches of lobular pneumonia seemed to me probable.

In summing up, we can say the presence of membrane in the throat exerted no material effect upon the course of the disease, except in the cases that presented a marked septic condition from the onset, and in these there was an extension of the disease into the naso-pharynx. The deposit of membrane in the throat may precede the eruption of the rash.

The membrane is not due to the bacillus of diphtheria. If the name diphtheria is retained as descriptive of the pathological condition it is practically important to remember that the throat lesion is but a local manifestation of the scarlet fever poison, and does not entail the danger of infecting another individual with the specific disease, diphtheria.

The six cases of otitis media in cases where there was no membrane, occurred in cases which offered no symptoms suggestive of such a serious complication until the onset of the primary fever due to the inflammation of the ear. In all the cases there was a sharp attack of fever, marking the beginning of the attack. In all the cases the discharge ceased before the patients were discharged.

Seven cases were of considerable interest to me in that during convalescence there was a considerable rise of temperature and pulse, without constitutional symptoms, in which repeated careful examination failed to elicit any sufficient cause for the fever. A boy who had an eruptive stage of marked mildness during desquamation, had for two months a temperature of 100° to 101° and frequent examination failed to elicit a single abnormal physical sign.

As two cases had for a varying but short period an irregularity of the action of the heart in rate and rhythm, it seemed to me possible that the mild fever might be due to granular degeneration of the heart. All the cases were kept in bed during the fever so that no strain was brought upon the heart. All the cases with elevated temperature which I speak of finally recovered without untoward symptoms.

NOTE.— Since I wrote this paper an investigation of a considerable number of cases of membranous inflammation of the throat in scarlet fever by Drs. Councilman and Williams, has demonstrated the presence of the Lœffler bacillus. In the light of this work I am wrong in saying that the membranous affection of the throat in scarlet fever is absolutely distinct from the very similar pathological process in diphtheria. — H. J.

A CONSIDERATION OF ERYSIPELAS OCCURRING DURING THE PUERPERIUM.[1]

BY CHARLES W. GALLOUPE, M.D., OF BOSTON.

THE complication of erysipelas with the puerperal state presents many points of medical interest, but perhaps the most important of all, at the present time, is the question of infection. The contagiousness of erysipelas has for many years been hotly argued from the clinical standpoint, but no conclusion could be reached until the development of bacteriology made proofs of another and more definite sort possible. The discovery of specific bacteria in anthrax, gonorrhœa, and other contagious diseases, led to the study of erysipelas by similar methods of inoculation with cultures from known cases. The first important contribution to this subject was a record of experiments on eleven cases, published by Fehleisen in 1883.[2] In each case he found a micrococcus of uniform character, especially abundant in the lymph spaces of the tissues actively affected. This was cultivated successfully and inoculated into the ear of a rabbit, where, in eight cases out of nine, the characteristic signs of erysipelas appeared, and the tissues were found to contain a chain-like coccus to which he gave the name of "streptococcus erysipelatis." Later experiments have proved beyond doubt the bacterial origin of the disease in every instance. Before this fact was demonstrated, and while the evidence was wholly clinical, the non-contagiousness of the disease was claimed by many observers, from the absence in their own experience of instances of transmission and from the failure to trace out in every case the source and method of contagion. This difficulty suggested the theory of an "idiopathic" erysipelas, and also of a special non-contagious form of the disease,[3] while the presence of a gross wound served to distinguish "surgical" from "medical" erysipelas. All forms of the disease are now known, however, to have a single infective cause in the shape of a micrococcus, which enters the system through a wound of the skin or mucous membrane, not necessarily large enough to be visible, perhaps even microscopic, but sufficient to expose the lymph spaces to absorption. In 1884, before this fact was established, D. B. St. John Roosa[4] announced his opinion that erysipelas was always traumatic in its origin. He did not believe that it could be generated in a sound skin, and explained the cases ascribed to cold, to the "trauma-

[1] Read before the Massachusetts Medical Society, June 14, 1893, and recommended for publication by the Society.
[2] Fehleisen: "Ætiologie des Erysipels," Berlin, 1883.
[3] Goodridge, of Bath Royal United Hospital, quoted in Medical and Surgical Journal, vol. cx., January, 1884.
[4] D. B. St. John Roosa, reported in Medical and Surgical Journal, December, 1884.

tism of a high wind blowing upon the face." In the same year E. L. Partridge,[5] of New York, presented a careful summary of the evidence in these words: "It [erysipelas] is probably never of neurotic origin, nor is it always necessary for it to be preceded by traumatism; there is undoubtedly an idiopathic form in which the poison gains access, in all probability, through the respiratory tract. Of this latter view, however, we have no absolute proof, and the view which insists upon the necessity of an abrasion is therefore entitled to respect."

The fact that erysipelas is now proven to be caused in every case by bacterial infection is sufficient to make its prophylaxis an important matter, and especially in the puerperal patient, presenting, as she does, a wounded surface in the lacerated vaginal wall, and a still more sensitive absorbent area in the uterine cavity with its patent veins and lymph spaces. But the subject assumes a still greater importance when we consider the possibility of erysipelas causing by inoculation a puerperal septicæmia — in other words, the possible identity of erysipelas and certain forms of puerperal fever. In proof of the individuality of the streptococcus erysipelatis, Fehleisen says:[6] "Though somewhat similar organisms are found in the pus of wounds and in pyæmia, the mode of growth of the micrococcus of erysipelas is found to be characteristic." This statement was made after limited experiment, and was disputed on two grounds. First, that some cases of erysipelas failed to show the specific coccus; second, that inoculation of the pure culture from erysipelatous subjects was able to cause, under varying conditions, all the manifestations of septicæmia. The value of experiments of this sort depends largely upon the care and technical skill of the observer, as the failure, in any instance, to discover a micrococcus is not an absolute proof of its absence; while, on the other hand, imperfect sterilization of apparatus might result in the development of other cocci than the pure culture derived from the erysipelatous tissues. A careful series of experiments on the mouse by Fraenkel,[7] in 1889, showed that inoculation of cultures from erysipelas caused, in one case, purulent ophthalmitis, in another peritonitis, and in a third abscess in the skin of the back. The experiments proved, in his mind, the identity of the streptococcus erysipelatis and the streptococcus pyogenes, while the "clinical differences in the disease were due to the mode and locality of the infection, perhaps also to the quantity of the virus and the disposition of the individual." Verneuil and Cado,[8] in 1889, proved by inoculation the identity of acute lymphangitis and erysipelas, and Mosny[9] found on autopsy of a patient who died two days after the onset of an infectious pneumonia, a streptococcus identical with the streptococcus erysipelatis, as proved by inoculation. The characteristic appearance and behavior of Fehleisen's coccus were disputed by Hell,[10] who reached this conclusion after many experiments: "With our known methods [of staining, etc.] can be seen no noticeable difference between pus and erysipelas cocci; they completely agree in morphological and biological aspects as well as in their behavior towards inoculated animals." A further discovery in the investigation of this subject is claimed by Jordan,[11] who states that "besides the true erysipelas streptococcus, not only the streptococcus pyogenes, but also other pus-formers, such as staphylococcus pyogenes, can cause erysipelas." He concludes that "erysipelas is etiologically not a specific disease. It is regularly due to streptococcus pyogenes, rarely to staphylococcus pyogenes. The difference in the action of the pyogenic coccus on the tissues depends upon difference in localization and upon variation in its virulence (increase or diminution). It is of a quantitative sort." This opinion he bases upon the study of two cases of inoculation from facial erysipelas, but that this was not convincing is shown by the comment of a German critic: "So many conclusions on so few cases; a pity they rest on thoughts rather than facts!" An opinion similar to Jordan's was expressed by Atkinson[12] before the American Dermatological Association in 1887 in these terms: "Erysipelas should be considered the expression of the effect of one of a number of specific causes, and, in that sense, should be regarded as a symptomatic inflammation."

However we may view this matter, the repetition of experiments has led to a general acceptance of the interchangeability of erysipelas and the septic inflammations. This is a rational belief to hold, for it is well known from clinical experience that diseases differing widely in their manifestions can be due to one and the same cause, and, in the subject under discussion, experiment has shown that the same inoculation may develop either an erysipelas or a disease of widely different character depending upon, first, the seat of absorption; second, the strength of the virus; and third, the peculiarities of the patient. The influence of the seat of absorption is shown, for example, by its effect on the period of incubation as demonstrated in a series of experiments by Echalier[13] in 1890. He showed "the resemblance of so-called surgical erysipelas to inoculated erysipelas in the short period of incubation [average, thirty hours] while medical, or spontaneous, erysipelas has a much longer period, averaging one week." The effect of variation in the quantity of virus is shown by the experiments of Roger in 1891.[14] A virus, which at first could cause a typical erysipelas, was weakened by re-inoculation, when it served to produce a local abscess only. He states that "the streptococcus experiences no change of growth, but a great diminution of virulence, if one works on the serum of animals who have before suffered erysipelas. After four inoculations the growth of the streptococcus was not stopped, only, instead of erysipelas, a local abscess appeared." The modification of the disease by individual and racial peculiarities is illustrated by a statement of Dr. C. L. Stevens[15] in 1884. He saw in Turkey "many cases of idiopathic erysipelas, asthenic in character, and resembling typhoid fever so common in Oriental cities, though having a more favorable prognosis and a shorter natural history."

If we accept the unity of the bacteria of the several

[5] E. L. Partridge, reported in Medical and Surgical Journal, December, 1884.
[6] Fehleisen, quoted in Medical and Surgical Journal, vol. cx., January, 1884.
[7] Fraenkel: Centralblatt für Bakteriologie, 1889.
[8] Verneuil and Cado: Comptes rendus de l'Acad. de Sciences de Paris, tome cviii., quoted in Cent. für Bakt., 1889.
[9] Mosny: La Semaine Medicale No. 7, 1890, quoted in Cent. für Bakt. 1890.
[10] Hell, quoted in Cent. für Bakt., 1890,
[11] Jordan (Heidelberg), quoted in Cent. für Bakt. 1891 and 1892. Reported in Medical and Surgical Journal, vol. cxii., 1887.
[12] I. E. Atkinson (Baltimore): American Dermatological Association, Baltimore, 1887.
[13] Echalier, "De l'incubation de l'erysipèle," quoted in Cent. für Bakt., 1890.
[14] G. H. Roger, "Propriétés bactéricides du sérum pour le streptocoque de l'erysipèle," 1890., quoted in Cent. für Bakt., 1891.
[15] C. L. Stevens, Medical and Surgical Journal, vol. cxii., 1884.

septic processes, we have one explanation of their varying manifestations in variations in form or quantity of the ptomaïnes produced. A. B. Griffiths[16] has discovered in the urine of erysipelas an alkaloid which he names "erysipeline," but he has not determined if the micrococcus of Fehleisen produces the same when grown in tubes of gelatine. The manner in which these ptomaïnes are formed is not yet determined; they may be an excretion of the micrococcus itself, or they may be a decomposition product of the tissues in which it lives. Each cell of the living body is constantly undergoing a process of death and regeneration, during which a toxic substance is formed which becomes harmful to the body if the quantity is created in excess, or the power of elimination checked. This suggests an explanation of the diverse effects of bacteria, in that different tissues may have the property of producing different alkaloids in the presence of the same bacteria. When general infection results from a local disease, the symptoms are those of the particular alkaloid generated. For instance, some act especially on the heart and circulation, while others act principally on respiration.[17] In the case of erysipelas it is affirmed that "as a rule general infection of streptococci is not commonly found. It can be caused by them, however."[18]

But independently of the proofs of bacteriology, the connection between erysipelas and puerperal fever has long been inferred from their clinical relations. As long ago as 1874 a report by T. C. Minor[19] states that in his investigations "epidemic erysipelas was invariably associated with an outbreak of epidemic puerperal fever, or *vice versa*," and Fiessinger[20] reported in 1889 "an epidemic of puerperal septicæmia of erysipelatous origin." On the other hand, this connection has been strenuously denied, and many instances of noncontagion after exposure quoted in evidence. Kime,[21] in 1888, in a paper entitled "Results of Erysipelas Complicating Pregnancy and Parturition," concludes that there is nothing in common.

The uncertainty of arguing from single cases is evident from the strange coincidences so often seen in the physical world, and in medical matters this is increased by the unconscious bias of the observer. Medical reports are often valueless from the fact that the busy practitioner frequently has neither the time nor the training to make accurate observations, even if unprejudiced in his investigations. It is not sufficient to find *a* cause — it is essential to exclude all other causes to establish the etiology of a case. In some instances an attack of erysipelas is attributed to infection from another case of the same disease, without noting the occurrence of septicæmia before and after in the practice of the reporter, and, *per contra*, a puerperal septicæmia may be traced back to a remote septic origin, while an intervening erysipelas might lead another observer to ascribe it to a different cause.

The number of cases of puerperal erysipelas impartially reported seems very small, and this is due in part to the fact that a typical cutaneous eruption has been considered necessary for the diagnosis. The existence of infection without external signs was claimed by Winckel,[22] in 1886, and the disease called by him "internal puerperal erysipelas"; and in 1890 two cases of acute infectious pneumonia of erysipelatous origin were reported by Mosny, as quoted before.[23]

Winckel reported that he had seen forty-two cases of erysipelas during pregnancy and the puerperal state, six occurring before and thirty-six after delivery. Of the thirty-six puerperal cases, twenty-eight began in the genitalia, two in the breast, and the remaining six in the face and scalp. These cases terminated as follows: In the twenty-eight cases having their origin in the vulva, there were twelve deaths; in the other fourteen there were two deaths. The high death-rate shows the importance of the subject, and the small number of cases recorded leads me to report two cases.

The first is of interest merely as an instance of noncontagion. The patient was a Swede, aged thirty-five, in her fifth pregnancy, all but one of her previous deliveries requiring forceps. I had attended her in October, 1885, for a light attack of facial erysipelas, but did not see her again until the evening of February 13, 1886, when I found her in labor. The case progressed slowly until finally, the pains ceasing entirely, I applied forceps at four o'clock, A. M. of the fourteenth, without ether, and delivered a healthy child of eleven pounds weight, presenting O. L. A. The patient had had a chill the preceding day, and showed a marked erysipelatous blush on the nose at the time of labor. She had high temperature for five days, but no other symptoms, the disease assuming a light form and disappearing in a week. The child was well throughout. In this case there was every opportunity for a conveyance of the contagium to the genital tract, but no general septic infection occurred, and the facial erysipelas ran its course just as in any non-puerperal case.

The second patient was an American, twenty-one years of age, in her first pregnancy. She was of good constitution, of average height and weight, had never had erysipelas, and was perfectly well aside from the ailments incident to pregnancy. Labor began June 1, 1888, and during the forenoon of June 2d she was delivered, without instruments, of a child weighing about eleven pounds. There was a slight, superficial tear of the perineum, exposing perhaps a square inch of raw surface, and not needing a stitch. For two days the case progressed normally, but on the morning of June 4th, forty-eight hours after delivery, I found her with a high temperature and all the discomforts due to fever, but no tenderness or distension of the bowels. Lochia normal. An enema was given and measures adopted to reduce temperature. On a second visit the same day, I found marked redness and swelling of the perineal region, involving the labia on each side, and presenting all the characteristics of cutaneous erysipelas. At the same time the vaginal walls were dry, hot and red as far in as could be readily seen. From this time onward the blush spread, accompanied with great infiltration of the skin and blistering over the nates. At first it spread most rapidly upward, until, on the sixth day of the disease, it had covered the entire abdomen front and back up to the level of the umbilicus, where it ultimately stopped. At the same time it had extended downward on both legs, having by this time reached about the middle of the thighs, and eventually covering the entire surface

[16] A. B. Griffiths: Compte Rendu de l'Acad. de Sciences.
[17] S. Arloing, 1892, quoted in Cornil.
[18] Pfuhl: Zeitschrift für Hygienie, 1892.
[19] Thos. C. Minor: "Erysipelas and child-bed fever," Cincinnati, 1874.
[20] Fiessinger: "Note sur une epidémie de sèpticémie puerpérale d'origine erysipelateuse," 1889.
[21] Kime: Transactions Indiana Medical Society, 1888.
[22] Winckel: "Zur Lehre von dem internen puerperalen Erysipel," Verhandl. des deutsch Gesellsch., für Gynäk., vol. i, p. 78, 1886.
[23] Mosny: La Semaine Medicale No. 7, 1890, quoted in Cent. für Bakt., 1890.

of both legs to the tips of the toes. From the commencement of the disease to the final disappearance of the redness and swelling, was a period of twenty-three days, during the first two weeks of which the temperature was almost constantly from 103° to 105°. There were no abdominal symptoms at any time, and no evidence of general septic infection. The child was put to the breast soon after its birth, and throughout the disease obtained a moderate amount of milk, which, however, was not sufficient, so that partial feeding was adopted early. This programme was continued until the infant was five months old, when nursing was discontinued, and during all of this time the child was perfectly well, except for a transient diarrhœa caused by the surreptitious administration of oatmeal. The child died fourteen months later of cholera infantum, but the mother has remained perfectly well to this day, having passed through a second pregnancy a year ago, without complications.

This patient presented a typical surgical erysipelas, starting in the perineal wound, forty-eight hours after delivery. According to the experiments of Echalier, quoted above, the period of incubation of inoculated erysipelas presents an average of thirty hours, and, as the disease appeared in this case forty-eight hours after the formation of a wound, it is easily explained by direct inoculation. The patient was not catheterized, and my hands had not come in contact with her, except at the time of delivery; so that, if the poison was introduced by the hand of the accoucheur, the incubation period was exceptionally long. To discover, if possible, a source of contagion from a previous case of erysipelas or puerperal fever, I have examined my records for the preceding month, and find that on May 6th I attended a patient through an exceptionally easy confinement, who died May 10th of the most violent form of acute septicæmia — the only fatal case I ever had. From that date up to June 2d I had attended two obstetric cases, a case of fresh scalp wounds, and several cases of boils, bubo, etc., presenting suppurating surfaces, in none of which did any sign of erysipelas or septicæmia appear. During the balance of June, and while attending this case, I had five obstetric cases, two of them instrumental, and two miscarriages, in none of which did any bad symptom occur. One case of erysipelas did occur in a patient with a wound of the nose, who came under my care June 22d, the blush appearing at the wound June 28th, thence spreading over the face, not invading the scalp and disappearing in six days.

In considering the puerperal case we are impressed, in the first place, with the fact that the disease was exceptionally severe, both in extent and acuteness. A report by Manfredi and Traversa[24] emphasizes the fact that "the gravest forms of erysipelas are not those which last the longest with circumscribed areas, but those which present a large surface of invasion, as in traumatic erysipelas." In spite of the acuteness of the disease and the favorable opportunities for absorption, the case progressed exactly as if in a non-puerperal patient. A greater interest attaches to the possible source of infection. Inoculated erysipelas presents a short period of incubation, and, as a rule, shorter in the more violent cases, so that we might assume that the seed was planted about twenty-four hours after delivery. In that case it was probably derived, not from the physician, but from the unscientific handling of the nurse, who had used, I afterwards learned, some soiled cloths to bind upon the patient. Doyen, of Rheims,[25] who maintains the unity of the three streptococci of pus, erysipelas, and puerperal fever, says: "To-day the development of puerperal septicæmia can be put to the account of imprudence or negligence"; and certainly there were abundant opportunities for infection, for in 1888 there was not the scientific use of antiseptics in midwifery that obtains to-day. The occurrence of an extremely violent case of puerperal septicæmia, followed in twenty-three days by an equally violent and exceptional erysipelas suggests a possible connection between the two. The occurrence of nine cases of childbirth and miscarriage during the interval between the two cases and during the progress of the erysipelas, some of them involving extensive digital exploration of the uterus, but resulting in no infection, is evidence of negative value only.

A study of the literature of this subject impresses one with the necessity for, *first*, fuller reports of cases, with special reference to the existence of any septic disease in the practice of the observer at the same time; *second*, further experiment on the duration of the vitality of the micrococcus when conveyed by hands, instruments and clothing; *third*, confirmation of either the specific nature of the streptococcus erysipelatis, or of its identity with the micrococcus of other septic diseases. Clinical as well as bacteriological evidence is needed to establish the practical point of defining the duties of the physician in the way of disinfection, or absolute avoidance of obstetric cases while attending septic patients. Laboratory work is necessarily confined to a few men, but every practitioner can report accurately his cases, and so aid in the solution of this most urgent and important point of practice.

[24] Manfredi and Traversa: Ann. de l'Inst. Pasteur, 1888.

[25] Doyen (Rheims), 1890, quoted in Cornil.

Clinical Department.

A CASE OF ACUTE SEPTICÆMIA.

BY F. B. HARRINGTON, M.D.

The death of Dr. Charles Pratt Strong is so striking an illustration of the dangers to which physicians are subjected in the course of their professional work, that it seems desirable to make a clinical report of this case. Dr. Strong died of acute septicæmia six days after operating upon a patient with septic peritonitis, probably of appendicular origin. The nature of the disease was not determined until after the death of the patient. The point of entrance of the septic poison is not known, as no wound was discovered anywhere upon the body. The circumstantial evidence is so strong that there can be no doubt that the disease resulted from the operation, notwithstanding all the usual precautions were taken.

On the day following the operation Dr. Strong performed a hard day's work. He mentioned in the afternoon that the left arm felt somewhat sore, but he did not speak of it again in the evening. He had a somewhat restless night, and decided on the following day not to go out to his work. I saw him then for the first time. He complained of some pain in the left pectoral muscle, left shoulder and elbow. The temperature was normal and the pulse 80. There was a loss of appetite and some nausea. In the evening the

temperature was 100° and the pulse 90. The patient was drowsy through the day, and slept a good deal. There was a trace of albumen in the urine.

On the following morning the temperature was 102° and the pulse was 90. There was some sweating. In the evening the temperature rose to 103° and the pulse to 98. The urine contained a large amount of albumen. The patient still complained of pains in the left arm and back. There was a disinclination to take food. A moderate amount, however, both of food and stimulants, was given.

On the following morning the temperature remained at 103° and the pulse at 98. There was still much inclination to sleep. In the afternoon there was complaint of pain in the right knee and right thigh just above the knee. The temperature remained at 103° and the pulse rose to 108. During the night there was considerable pain in the right knee and thigh.

In the morning there was found to be some fluid in the right knee-joint, and swelling of the lower part of the right thigh. A ham-splint was put on, and the leg suspended. An examination of the urine showed a large trace of albumen, hyaline, granular and fatty casts, but no blood. The temperature had fallen to 101°, while the pulse remained at 108. The patient had been perfectly clear in his mind, and fairly comfortable. In the evening the temperature had dropped to 100°, but the pulse had risen to 120, and was of bad character. The sweating became profuse. The following night was a comfortable one.

In the morning the pulse had risen to 128 and the temperature to 101.8°. During the night the thigh had swollen considerably. The heart's action was feeble, and there was a duskiness about the skin. The respiration, which had remained normal during the entire sickness, rose rapidly during the morning to 50 per minute. On examination, bronchial breathing was detected over the upper lobe of the right lung. The patient sank rapidly and died in the evening, this being the fifth day of his sickness. The thigh in a few hours became dark and greatly swollen, and was covered with bullæ.

The symptoms up to the last twenty-four hours had suggested an attack of *la grippe*, with the usual amount of acute irritation of the kidneys. The condition of the right knee had suggested an acute inflammatory rheumatism. The marked changes in the thigh did not appear until the last few hours. The treatment had been supporting and stimulating. No depressants had been used. The amount of pain was not great, so that opiates were not needed. The patient did not associate his illness with the operation, which was its probable cause. It was subsequently found, on investigation, that, at the close of the operation, Dr. Strong had pricked one of the fingers of the left hand with a needle which was being used in closing the incision.

Several months earlier Dr. Strong had suffered from a synovitis of the left knee, but there had been complete recovery; and no connection could be traced between this and the subsequent illness. There was no evidence of a chronic nephritis.

AUTOPSY.

The preliminary bacteriological examination and autopsy were made by Drs. Councilman and Whitney about twelve hours after death, and the bacteriological cultivations were made by Dr. Stone.

There was lividity of the dependent parts of the body, and the course of the cutaneous veins was marked by dark, dirty bluish-black lines with illy-defined edges. The right thigh above the knee was swollen, dark and discolored, with numerous bullæ containing a dirty-red serum. The lungs contained a large amount of frothy, reddish fluid, but there was no evident consolidation. The muscular substance of the heart and the parenchyma of the liver and kidney were very pale and opaque. The spleen was swollen, pale, and very soft. The other organs presented nothing remarkable. The muscles of the external aspect of the right thigh were dry, infiltrated with blood coloring matter, but there was no evident pus.

Cover-glass preparations gave the character of the bacteria as micrococci, chiefly in long chains (streptococci). Cultures were made from the heart's blood, the liver, kidney, spleen and subcutaneous tissue of the thigh. From all of these there was obtained a pure culture of streptococci. These grew in long chains in bouillon and on agar. In the former they made the fluid cloudy for twenty-four hours and then settled as a white precipitate. In gelatine they grew along the needle track in small isolated colonies. They grew also in milk, but did not coagulate it. On blood serum the bacteria formed small white colonies, at first almost like drops of water on the surface. They developed rapidly in the thermostat at 37° C., more slowly at the ordinary temperature of the room.

The sections of the muscles of the thigh showed that all the intermuscular spaces were distended by a mass of bacteria, there was no infiltration of leucocytes into the tissues, though the blood-vessels seemed to contain an unusually large number of white blood-corpuscles. In sections of the kidney the bacteria were demonstrated with considerable difficulty, in spite of the fact that the amount of kidney substance that one could pick up with a small wire loop gave over one hundred colonies when planted. When found, the cocci were in the intercellular spaces. Neither in the kidney nor in the muscular tissue was there any suggestion of arrangement of the cocci in chains. This was to be seen only when cultivated outside of the body.

The case is one of true septicæmia following a local streptococcus affection, the original point of infection not being evident.

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

EIGHTH ANNUAL MEETING, AT WASHINGTON, D. C., MAY 30, 31 AND JUNE 1, 1893.

(Continued from No. 6, p. 146.)

ON THE REACTION OF URINE WITH ETHER,

by DR. ANDREW H. SMITH, New York.

Ether, when very thoroughly agitated with normal urine, gives rise, in most specimens, to the separation of a gelatinous opalescent substance, which may be so dense as to permit the test tube to be reversed without losing its contents. The urine may or may not be acid. Certain other specimens of normal urine will not yield this result unless an acid be added. These specimens may or may not have been acid originally.

A third very small class of specimens of normal

urine will not yield the reaction even on the addition of acid. The substance thus obtained responds to the tests for protein. It is obtained after all mucus has been removed from the urine. It therefore may be considered an albuminoid substance. It seems to be most abundant in the urine of persons having a vigorous appetite and a good digestion. It is scanty or absent when the subject is on restricted diet, or when digestion is feeble; also in the case of young children. The inference is, therefore, that it represents an excess of nutritive proteids taken into the blood and thrown out by the kidneys. It is found in albuminuria after the albumen has been removed from the urine by boiling. It is not found in the washings of albumen thus removed; but if an acid be added to the albumen on the filter, the washings at once give the reaction with ether.

It is possible that some of the cases in which anuria follows prolonged etherization, may be explained by the formation of this gelatinous substance in the tubercles of the kidneys, thus mechanically obstructing the excretion of the urine.

PROBABLE ORIGIN AND EARLY SYMPTOMS OF CERTAIN CHRONIC DISEASES OF THE KIDNEYS,

by CHARLES S. BOND, Richmond, Ind.

Chronic diseases of the kidney with definitely known origin, such as diphtheria, scarlet fever, pregnancy, etc., were not considered in the paper. It was the author's endeavor to ascertain the ultimate cause or causes of those chronic changes found under the ambiguous head of chronic Bright's disease.

The diffuse character of the lesions in the different tissues of the kidney, as seen post mortem, lead us to the view that the irritant or irritants producing these lesions are presented to these various tissues in more or less constant quantities through the blood current. The remote lesions in the arteries of the head, trunk and extremities exemplify the existence of a common origin. In the living subject the wide distribution and general character of the changes are abundantly illustrated by such conditions as hypertrophy of the left ventricle, with or without lesions of the mitral valves, accompanied by hard, resistant pulse, congested mucous membranes, dyspnœa, headache, œdemas, tendency to inflammations of serous membranes, etc. There are many symptoms pointing to the existence of the general lesions long before albumen and casts appear in the urine.

Kidney inflammation is doubtless due to irritants found in the blood. Uric acid may be put in the list as an occasional cause of Bright's disease. Gout is sometimes intimately associated with Bright's disease, and this association proves the potency of uric acid as an irritant. Uræmia is intimately associated with the retention of nitrogenous products. In the early stage of Bright's disease the average daily quantity of nitrogenous products excreted is very much diminished. It is probable that retained nitrogenous products are causative agents in the production of Bright's disease. A great number of chemical compounds may result from the many different foods under varying conditions of digestion in the stomach and bowels. Vicious unions are often formed that not only irritate the walls of the stomach and bowels but also pass into the general circulation and cause more or less continuous irritation to the various tissues of the body. The ptomaines produced in the alimentary canal under certain conditions are probably carried into the blood and act as irritants. Leucomaines formed in the body under some circumstances may primarily or secondarily irritate the excreting organs.

The causes that primarily produce the irritants, secondarily causing that long train of pathological changes so indissolubly associated with Bright's disease, are those agents that disturb the metabolism of the cells of the body, causing them to run down outside of their lines of normal cleavage in their life manifestations, and thereby producing an excess or diminution of products, normal and abnormal, to the blood. In this metamorphosis no doubt many products will yet be found that are not now known to bear any relation to these lesions, and many others are now found in the urine which will be demonstrated to be due to cell disturbances in the otherwise diseased kidney that are abnormal expressions of such cells and that have nothing in common with the original causes of the vessel and kidney lesions.

A STUDY OF ADDISON'S DISEASE AND OF THE ADRENALS,

by W. GILMAN THOMPSON, New York.

The author's research was undertaken with a view of formulating such conclusions in regard to the etiology and symptomatology of Addison's disease as the still limited knowledge of the subject justifies. His personal experience includes three cases with autopsies. To these are added three more from the statistics of the New York and Presbyterian Hospitals. In addition he has collected unreported records of 40 autopsies in which lesions of the adrenals have been noted but without accompanying symptoms of Addison's disease. His conclusions are drawn from the total of 757 cases recorded by many different observers. Autopsies were made in nearly all.

We are obliged to abandon the earlier theory that Addison's disease is absolutely dependent upon adrenal lesion, in view of the fact that many typical cases have lately been observed with well marked bronzing in which the adrenal bodies were entirely normal. Among Lewin's histories, twelve per cent. were of this type. Virchow describes a typical case, with pigmentation, in which the microscopic examination of both the adrenals and sympathetic system presented nothing abnormal. Moreover, it is absolutely established that every variety of adrenal lesion which has ever been found associated with Addison's disease has also occurred without giving rise to any symptoms whatever. A most instructive case is related by Jürgens, where the pressure of a large aneurism caused atrophy and degeneration of the left splanchnic nerve, with typical bronzing and other symptoms of Addison's disease, whereas the adrenals remained normal.

The conclusions which the study of these cases seems to justify are: (1) That Addison's disease is a condition arising from and dependent upon irritation of the abdominal sympathetic nerves through lesions of themselves, their ganglia, or diseased supra-renal capsules. (2) In the great majority of instances (fully eighty per cent.) the disease originates as a secondary or primary tuberculosis of the adrenals, and the sympathetic system is either involved by extension of the pathological process or is functionally disturbed and irritated through the intimate anatomical connection existing between the adrenals and the relatively large number of nerves which they contain. (3) Actual le-

sion of the sympathetic system, which is far more common than heretofore supposed, is not necessary to produce the varied symptomatic phenomena of the disease. Functional disorder through irritation conveyed from the adrenals may sometimes cause all the symptoms, just as in chorea and many of the conditions of aggravated hysteria and other functional nervous disorders, we are often unable to find definite lesions. (4) In a certain proportion of cases (not over twenty per cent.) the adrenals are affected by some other lesions than those of tuberculosis, or else they remain normal (in twelve per cent.) and the sympathetic nerves and ganglia are alone diseased. Dr. Thompson then gave the results of his inoculation and other experiments upon the adrenals, which he has been carrying on at the Loomis Laboratory in the past four months.

DR. WELCH, of Baltimore, did not think it possible to draw any other conclusion than had been drawn by Dr. Thompson from his record of cases. He had seen six cases of Addison's disease, all associated with the characteristic tuberculous lesion of the adrenals; and in two of these tubercle bacilli were found, but only after a long search. In these cases the tuberculous lesions had an unusual localization. In one case there was tubercular deposit in the bodies of nearly all of the vertebræ. In another case there were tuberculous lesions in the mesenteric glands and in the genital tract, but nowhere else in the body. Tuberculous lesions associated with Addison's disease are often peculiar in localization. A few months ago a negro came to autopsy at the Johns Hopkins Hospital, and tuberculous disease of both of his adrenals was found. There had been no suspicion of the existence of Addison's disease. The mucous membranes were carefully examined, and abundant dark pigmentation of the mucous membrane of the gums and of the side and back of the tongue was found. The mucous membrane of the gums and of the tongue of the negro was very often pigmented in health, much more frequently than in white people. It was an interesting question as to how a diagnosis was to be made in the negro.

DR. J. T. WHITTAKER, of Cincinnati, had seen two cases of Addison's disease in the past five years, both of which had shown caseous masses in the adrenals, and one evidence of tuberculosis elsewhere. The diagnosis was established by the digestive and nervous symptoms and discoloration of the skin. The discoloration of the skin occurs, not as an abnormal deposit, but as a physiological plus, and over-accumulation of pigment in places where pigment usually occurs, as in the linea alba, nipples, scrotum and axillary region. He was surprised to learn that in so large a proportion of cases the pigmentation was not due to disease of the adrenals. Brown-Séquard's theory, recently revived, is that it is the function of the supra-renal capsules to remove the pigment from the body, and disease of these supra-renal glands destroys this power and hence the pigment accumulates. It was a comfort to believe that the disease was caused by tuberculosis; for if it were a pure tuberculosis, it might be amenable to some relief.

DR. THOMPSON desired to emphasize the interest that attaches to careful examination of the abdominal sympathetic nerves and ganglia in cases of Addison's disease, and urged those who had opportunities to make pathological examinations not to overlook this point.

TWO CASES OF CYSTIN CALCULUS,

by JAMES TYSON, M.D.

CASE I was a young man of twenty-three years, who first consulted Dr. Tyson in September, 1888. A few days previous had had severe pain in the left flank. Examination of the urine showed the presence of a copious flocculent sediment composed entirely of tablets of cystin. He has had pains in the left flank at intervals ever since, and has passed numerous small calculi, all composed of pure cystin. Repeated examinations of the urine have always shown the presence of cystin. Patient has been upon aromatic spirits of ammonia and citrate of potash; but even while the urine gave an alkaline reaction, cystin was found to be present. The calculi passed most recently have been perfectly smooth, as contrasted with the former ones which were rough, and look as though they had been reduced in size by the action of some solvent substance.

CASE II was a practising physician, aged forty-five, who came under observation in January, 1879. At eight years of age he was lithotomized and a calculus of pure cystin removed. He continued to pass cystin daily through life. Had had numerous attacks of nephritic colic. He died March 6, 1879. A calculus was found in the left ureter just ready to pass into the bladder. It was large as a pea and roughly granular. Behind the calculus and outside of the ureter was a collection of pus dipping down into the pelvis. A single large calculus was found in the gall-bladder, occupying its entire extent. One kidney was much reduced in size, but both were reported as normal.

DR. WHITTAKER asked Dr. Tyson concerning the origin of cystin.

DR. TYSON replied that it was not known.

DR. WHITTAKER called attention to some very fine observations by Brieger in regard to cystin. Brieger derives it as a ptomaine from the alimentary canal, and finds it always in combination with diamine. He assumes it to be found only in connection with infectious diseases. In Dr. Tyson's cases the occurrence of cystin in the urine is a life-long condition; and that is, of course, incompatible with the view that it occurs only in the course of any ordinary infectious disease.

(To be continued.)

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. T. BOWEN, M.D., SECRETARY.

REGULAR meeting, Monday, April 24, 1893, the President, DR. C. F. FOLSOM, in the chair.

DR. H. JACKSON read a paper on

COMPLICATIONS OF SCARLET FEVER AS OBSERVED IN FIFTY CASES.[1]

DR. F. H. WILLIAMS: I am very much interested in this subject, but I find myself a little embarrassed because I expect to read a paper which will cover part of the same ground, so that there will hardly be time for me to say all that I would like to on the subject under discussion. As regards the eruption and the membrane in the throat, as a rule, I think the eruption and the throat symptoms will be found together. Sometimes the signs in the throat will come first. Of

[1] See page 162 of the Journal.

course, as the cases come into the hospital, it is hard to know how long they have had the throat symptoms. I have here a list of between thirty and forty cases with throat symptoms; and among them there are three where the eruption came on from four to seven days after the throat symptoms, but that seems to be unusual.

As to the question of whether the throat symptoms influence the prognosis in any way, if I understand Dr. Jackson rightly, he thinks that the cases with severe throat symptoms have about the same mortality as the ordinary cases of scarlet fever. This was not the case in the patients whom I have followed. To my mind the membrane in the throat in scarlet fever makes the prognosis very much worse. I think it is one of the most serious signs that one finds in a case of scarlet fever. There are few things I think of in the early stages of scarlet fever that would incline one to give so bad a prognosis.

As regards the symptoms in the ear, I rather expected, in looking over a number of cases, that one would find otitis media where the throat symptoms were very severe; but in two hundred cases there does not seem to be a marked difference between those with severe throats in these cases and the ordinary cases of scarlet fever, that is, I found about as large a percentage of patients who suffered from trouble in the ear in one set of cases as in the other, but I think it would take a large number of cases to determine a point like this. It seems to me that scarlet fever is a disease in which one needs to have a large series of cases in order to get any statistics. For example, Murchison and others have made some observations about scarlet fever, and find the mortality from three per cent. to ten per cent., or fifteen per cent. to twenty per cent., or even to thirty-four per cent., in different epidemics; also in different seasons of the year the mortality varies very markedly, and I think that during certain seasons of the year one would be more apt to find cases of scarlet fever having membrane in the throat than at other seasons.

Dr. Ayer: I feel that papers like Dr. Jackson's are of the greatest clinical value. I remember seven or eight years ago to have collected a series of cases. There were ten, if I remember rightly, of the twenty-three where the membrane was the most important of all the symptoms; and in one the membrane appeared upon the throat before the rash appeared upon the skin. It has always seemed to me that the throat symptoms were of the greatest possible importance in the prognosis of a case. Most all of the fatal cases I have seen have died with severe anginous symptoms. Those cases used to be called cases of scarlet fever with diphtheritic throat. I think the explanation Dr. Jackson has given is the correct one.

Dr. Jackson, replying to a question by Dr. Cobb, stated that post-nasal examination had not been made, as all the cases were too young and too sick to make such examination possible. Diuretics he had not given as a routine practice, but patients were kept in bed until the abundant desquamation had ceased. They were kept on milk diet during active desquamation. In regard to the prognosis, about eight of the eleven fatal cases had serious throat lesion, but those cases presented a wide-spread membrane, with extension into the nose from the beginning. It seemed to be a furious process from the beginning. He should regard membrane in the throat as a serious complication, but should feel that a limited membrane on a part of the pharynx was not of such serious import. The cases that did badly looked very sick from the very beginning. Any one at a glance could tell that they were in an extremely low septic condition, and of those cases only one got well. The treatment of all was the same.

Dr. Councilman: I should like to ask what clinicians generally think about the nephritis, if they think there is any probability that it may be due to an accidental infection, to a secondary infection from the throat or the lungs in cases of scarlet fever, or whether they regard it as essentially a part of the scarlet fever process and not coming from the mixed infection.

Dr. Jackson: I should think that was rather a question for the pathologist than the clinician. In my student days we were taught that cold was the essential factor, that great care must be taken against cold to prevent nephritis. It seems to me now such views must be thrown out, and the nephritis must be considered as a septic nephritis — I mean as an infective process, not as a part of the scarlet fever. As it developed in the cases in the hospital, there was absolutely no apparent cause. All the cases were treated alike. All were kept in bed for a varying length of time until the active desquamation had ceased, and all kept on a mild diet. The ward is as free from draughts as a ward can be. The temperature is cool night and day. The average temperature was 67° or 68°, so that in the cases as observed there the nephritis could not be ascribed to any such cause as catching cold or improper diet. But it was not especially prominent in the septic cases. The septic cases which died had an acute nephritis, but that was not a clinically recognized process during life.

Dr. Clark: I should like to ask if Dr. Jackson has any theory as to the connection of the membrane in the throat with the scarlet fever process, whether it is simply a complication.

Dr. Jackson: Certain observers have suggested, that the membrane being due apparently to a streptococcus, that the streptococcus might be the cause of the scarlet fever. These throat cases are considered either as the result of a toxine or as a secondary streptococcus infection. Booker is the only writer, so far as I know, who has made extended observations as to the characteristics of the streptococcus; and in all the streptococci which he cultivated from the throats of scarlet fever patients he found the same characteristic, that they were of very short vitality on nutrient media, thus offering quite a contrast to the ordinary streptococcus.

A Bit of Official Wisdom. — The following paragraph is copied verbatim from a board of health report of a town not a dozen miles from Suffolk County. The lucid advice, as well as the English of this intelligent health official, are both worthy of notice:

"Every person who is confined in a house owing to sickness and contagious diseases, should at all times be thoroughly covered with disinfectants, both externally and internally to insure safety to themselves and to others, as in my mind a spread of the same is caused by carelessness on the part of people who know it all, and cannot be told by persons of experience."

THE BOSTON

Medical and Surgical Journal.

THURSDAY, AUGUST 17, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

LEGISLATION RELATING TO MEDICAL MATTERS IN MASSACHUSETTS.

THE State legislature of 1893 has not passed many laws of direct interest to practitioners; but a few bearing on medical matters will be of interest, especially to medical men of Massachusetts.[1]

The law providing for the registration of deaths by physicians, in connection with the obtaining of a burial permit by undertakers, has been amended so that in cases of still-born children and those dying immediately after delivery, the same form is required as in other deaths, and a penalty is provided for making false statements. The law now reads as follows: "A physician who has attended a person during his last illness shall, when requested, forthwith furnish for registration, a certificate stating, to the best of his knowledge and belief, the name of the deceased, his age, the disease of which he died, the duration of his last sickness and the date of his decease; and a physician who has attended at the birth of a child dying immediately thereafter, or at the birth of a still-born child, shall, when requested, forthwith furnish for registration, a certificate stating to the best of his knowledge and belief, the fact that such a child died after birth, or was born dead. If a physician neglects or refuses to make a certificate as aforesaid, or makes a false statement therein, he shall be punished by a fine not exceeding fifty dollars."

A law regulating so-called sweat-shops provides that all places used as dwellings in which garments are made, intended for sale, shall be licensed and superintended by the police, or special inspectors, and that in cases of danger from infectious diseases or vermin, the State Board of Health shall take charge and control. Also that all garments made in such places shall bear tags, with the name of the State and town in which they were made.

[1] A similar summary for 1892 will be found on page 95 of the Journal of July 28, 1892.

Local boards of health are required to notify the State Board of the existence in their districts of any disease dangerous to the public health.

A law to abate the smoke nuisance in Boston provides that where bituminous coal is used to make steam in boilers, at least seventy-five per cent. of the smoke must be consumed or prevented from entering the atmosphere.

The State Board of Health is directed to investigate the question of a water-supply for Boston and neighboring towns, and to report in January, 1895.

The same board with the park commissioners shall investigate the sanitary condition of the Charles River Basin up to the Waltham line.

The members of the State Board of Cattle Commissioners are given power to enforce rules for the prevention of disease among animals.

Hereafter plumbers must be licensed, and must pass an examination. The examining boards consist of the chairman of the local board of health and the inspector of buildings. It will be no longer possible for any ignoramus to practise plumbing, but the practice of medicine is still unrestricted.

ANNUAL REPORT OF THE BOSTON CITY HOSPITAL.

THE report shows more than ever before the lack of accommodation for the constantly increasing demands made upon the hospital, but it shows a better outlook for the future; appropriations have been secured which, although insufficient for its needs, have made it possible to plan and begin the construction of new buildings. The trustees, with the assistance of the superintendent, have been for many months at work upon plans for a new hospital for contagious diseases. For the purpose of carrying out this work, $271,000 were placed at the disposal of the trustees, for the construction of new buildings; $24,000 were set apart for the construction of a new ambulance stable, and contracts were made for the buildings constituting the Chester-Park Hospital, costing $203,000. The work has progressed during the winter months as rapidly as the weather would permit. Piles and foundations have been laid for a lodge, administration building, domestic building, and one two-story ward. These buildings will be pushed as rapidly as possible during the coming season. Other buildings and alterations await further appropriation.

During the year which ended February 1, 7,512 patients were admitted, of whom 3,572 were medical, 3,152 surgical, and 788 contagious. The average number in the hospital at one time was 433, and the largest 515. The average number of days' stay was 19.24; 387 patients were treated in the Convalescent Home and 14,485 in the Out-Patient Department. The Contagious Service has been extremely active, a larger number of patients having been admitted than during any previous year. This is the first year during the six years the contagious wards have been oc-

cupied that any patients having a claim have been refused admission for want of room. The creation of the Contagious Service, and the isolation of both physicians, nurses and others who do duty in the contagious wards, which measure was thoroughly insisted upon last year, has been found to work greatly to the advantage of the hospital.

During the year a temporary pathological laboratory has been organized, and with the clinical laboratory formerly in use, good scientific work can now be done. Special investigations have been carried on in the diphtheria and scarlet-fever wards, and all patients admitted with diphtheria or suspected diphtheria have been subjected to the test of the pathological laboratory, to ensure diagnosis.

The report of the trustees on the question of establishing branch hospitals has already been noticed.[1] On the question of gratuitous treatment they say:

"Investigation of the claims of various patients in the ward beds has shown the fact that many patients have very properly declared their reluctance to be supported as charity patients, and when their attention has been called to the matter, have seemed very willing to pay for their own board, and have done so. It is the opinion of the trustees that this system of voluntary payment should be still further extended, and that patients, as far as is justifiable in each case, should pay something for their treatment in a hospital ward. The tendency of the times is to this result in other hospitals, both private and municipal. The contrast between American hospitals and foreign hospitals in this respect is largely in favor of the former. In foreign hospitals, not excepting those of England, the general sentiment among patients is that they ought to be gratuitously provided for, while the tendency among the occupants of American hospitals is a great willingness to pay, due to a feeling of independence, and a dislike of becoming objects of charity. It has been generally recognized that the first charit a person in straitened circumstances is ready and willing to receive is medical charity. The first step is thus taken towards pauperism. As a social problem, the trustees believe that it is their duty, as far as possible, to prevent this first step, and to oppose every tendency to pauperism. They therefore deem it their duty to continue the present system of investigation, and whenever it is not a hardship to contribute, to counsel and encourage patients to be wholly or, at least, partly self-supporting. The trustees also think that patients who are able to pay, should meet the actual cost of their support, $10 a week."

ON THE CONTAGIOUSNESS AND INOCULABILITY OF CANCER.

SIMON DUPLAY and Maurice Cazin have recently published an exhaustive study of the above interesting subject,[1] in which they sum up about all that is known respecting the transmissibility of cancer.

[1] Semaine Médicale, 1893. p. 330.

[1] See Journal of January 5, 1893.

They consider the question of the parasitic nature of cancer as still "without sufficient facts to support it."

In regard to the subject of contagiousness, they affirm that of all the modes of transmission of cancer, there is only one respecting which everybody is agreed, namely, that which consists in what may be called autoinoculability. Numerous cases, of unquestioned authenticity, are on record, where a patient already the subject of cancer, has been inoculated in some sound part of the body with fragments of the same cancer. Cornil reports or rather vouches for two cases of cancer transplanted from one part of the body to another on the same patient,[2] and Hahn has had a similar success in a patient under his care.[3] Roger Williams reports similar cases in the *Lancet*, September 12, 1891.

The case is clearly different when a cancerous fragment is grafted upon some part of the body of a healthy individual or animal, having no predisposition to malignant growths. In the immense majority of cases, no result follows the transplantation. Duplay and Cazin give the particulars of eighteen experiments[4] on healthy animals (dogs and rats), in which the transplantation of cancerous tissue produced nothing but local reactional lesions followed by resorption of the grafted fragments.

Their experiments made to test the direct transmission in the same species now number fifty-four, and they make the declaration that whatever may have been the procedure employed, all their results have been negative whenever they had to do with tumors clearly cancerous. The only positive results which they have obtained concern tumors having no epithelial character, but presenting an evident character of persistence and tendency to indefinite growth; as to the nature of this class of tumors they are not yet ready to pronounce.

These writers conclude that direct transmission must be absolutely exceptional, and they add, what, in fact, is commonly admitted, "that the essential condition of development of malignant neoplasms must consist in a special predisposition, certainly hereditary, which we cannot at present define."

The comparison of cancer to tubercle so often made from the point of view of parasitic origin and contagiousness, is no longer justifiable, for (to quote the words of the writers above mentioned) "when in our laboratories we inoculate guinea pigs or hares with tuberculous products, the inoculation produces its effects with certainty; but when we inoculate cancer in the same conditions, as a general rule we obtain absolutely no result whatever."

The authors conclude that "while nothing at the present time warrants us in believing in the direct contagiousness of cancer, we are none the less convinced of its infectious nature, dependent on a process of which we are still completely ignorant. . . . There does not yet exist any precise notion as to the origin

[2] Semaine Médicale, June 24, 1891.
[3] Berlin Klin. Woch., 1888, p. 413.
[4] Semaine Médicale, 1892, p. 61.

and modes of transmission of malignant neoplasms, and if it be proved that cancer has, in a few rare instances, been transmitted experimentally to animals, it is none the less evident that we have no right to speak of cancerous patients as if they were possible sources of contagion."

MEDICAL NOTES.

THE CARTWRIGHT PRIZE. — The Cartwright Prize of five hundred dollars established by the alumni of the College of Physicians and Surgeons of New York has been awarded to Dr. W. A. Holden, of New York, for an essay entitled, "An Outline of the Embryology of the Eye."

MEDICAL CANDIDATES IN JAPAN. — At the last government examination in Japan for license to practise medicine and surgery four thousand two hundred and seventy candidates presented themselves!

INSUFFICIENT NURSING. — At a recent coroner's inquiry in London, several instances of totally inadequate nursing force were brought to light. A patient having committed suicide by leaping from a window, the nurse testified that she had two wards, containing sixty-three patients, to attend to during the night. It would take her two or three minutes to get from the end of one ward, across the corridor, to the end of the other ward. She was on duty for twelve hours at a time. This experience of an insufficient night staff is said to be not uncommon. In some of the largest and most modern of provincial Poor-law infirmaries one nurse has charge of four wards, situated in separate blocks and containing acute and dying cases.

THE CHOLERA. — During the past week the cholera has increased to a very great extent in Russia. Podolia still continues to furnish the largest figures. there being about five hundred new cases each week, with a hundred deaths. In the other districts there has also been an increase in the number of cases, and several sporadic cases have occurred in St. Petersburg. In Austria, and especially in Roumania, the condition is considered more serious than it was last year. In Naples, the official reports record a daily average of five to ten cases and three or four deaths. Other telegraphic reports, which the government has not succeeded in suppressing, give the daily average of deaths as thirty. In New York there have been two deaths from cholera at quarantine. Both occurred in passengers of the steamer *Karamania*, which left Naples July 22d. Several other cases have occurred, but the patients are doing well. Three patients had died during the passage.

YELLOW FEVER. — On July 22d a vessel arrived at Pensacola from Cuba, with two sailors ill. On the 28th they were removed to the quarantine hospital, as having yellow fever. On August 9th, two deaths from yellow fever occurred, an adult and a child, without any suspicious cases being previously reported. Both cases were in the northern portion of the city, one mile from the water front, and separated about five blocks. It was impossible to trace the source of the fever. A panic at once ensued, and the people began to leave the city in large numbers; and all the cities and towns as far as Mobile and Birmingham declared an absolute quarantine against Pensacola. No new cases have occurred yet.

THE NAVAL LABORATORY. — Under an order from the Navy Department the United States Naval Laboratory at New York is to be known as the United States Naval Laboratory and Department of Instruction. Assistant Surgeons immediately after admission to the Navy are to be ordered to the Naval Laboratory and Department of Instruction, for such study and instruction, under prescribed rules and regulations, as may be necessary to familiarize them with the duties of medical officers afloat and on shore. In addition to the instruction in strictly naval medicine they are to have teaching in sanitary science and bacteriology. The course is to cover at least three months.

NEW ENGLAND.

A NOVEL DEDICATION OF A CREMATORY. — A brick crematory for private use has just been finished at Leominster. It is circular in form, about ten feet in diameter on the inside, has a chimney forty feet high. The building will be dedicated by a clambake, the bivalves to be cooked in the crematory oven.

A CASE OF GROSS CARELESSNESS. — The deaths of two children from scarlet-fever in Woburn last week has led to the disclosure of a bit of criminal carelessness on some one's part. Two weeks ago a barrel containing a feather bed was dumped on a vacant lot. The next day a number of children played upon the bed and scattered the feathers over each other. Within the week five of these children were taken sick with scarlet fever, three of them being children of one family, two of whom have died, while the third is not expected to live. The other two children are recovering, having had the malady only in mild form. After the children were taken sick some one burned the bed.

NEW YORK.

MORTALITY. — The weekly report of Dr. Nagle, Register of Records, shows a very gratifying decrease in the number of deaths in the city during the week ending August 5th. The number reported was 829, a decrease of 255 compared with the preceding week, and 140 less than the average of the corresponding weeks for the past five years. This represents an annual death-rate of only 22.70 per thousand of the estimated population, and is a remarkably good showing for the season of the year.

CHOLERA QUARANTINE AGAINST CANADA. — In view of the introduction of cholera into the port of New York by the steamer *Karamania*, a conference of the heads of the different city departments was held August 6th, at the request of the mayor, in reference to the sanitary condition of the city and the precautions necessary for protection against cholera. Among

the subjects discussed was the danger of the importation of disease through immigrants by way of Canada, and a resolution was passed requesting the City Board of Health to urge the State Board of Health to exert every effort to secure a careful system of inspection and quarantine at the points of entry on the State's northern boundary. At a meeting of the Board held August 9th, a resolution to the above effect was adopted. The members of the Board are confident that everything will be done to prevent cholera from passing quarantine, and the purpose of the resolution is to urge the State Board of Health to co-operate in the most efficient manner with the Marine-Hospital Service to prevent its entrance through the Canadian border.

THE NATIONAL QUARANTINE COMMITTEE of the New York Academy of Medicine has concluded its work in drafting a national quarantine law designed to protect American ports from the invasion of disease. The law which it proposes divides the United States into eleven sanitary districts and provides for a National Bureau of Public Health with fifteen members, eleven of whom shall be appointed by the President, with the consent of the Senate, one to come from each of the sanitary districts, and to be known as the Medical Commission. The other four members are to be ex-officio, the Surgeon-General of the Army, the Surgeon-General of the Navy, the Supervising Surgeon-General of the Marine-Hospital Service, and a law officer detailed by the Attorney-General from the Department of Justice. The powers of the Commission are defined and the law provides that they may, at their discretion, invite representatives of State Boards of Health to confer with them.

Miscellany.

MILK-SUPPLY OF CITIES.

IN an editorial upon the milk-supply of cities the New York *Medical Journal* says:

"It is true that great improvement has been effected during the last ten years in the management of cows, in the care of the milk at the farms, and in transporting it to the city, but much still remains to be done. Certain vital points have until recently been overlooked. In Boston, under the supervision of Dr. Rotch, milk produced at farms under close medical supervision can be obtained. He has established the most complete and perfect laboratory in the world. Physicians, by simply writing a prescription stating the percentage of fat, casein, and sugar desired for any special case, can have it delivered daily in the form of absolutely pure, clean milk, the exact proportions of the various constituents having been determined with mathematical exactness. Such laboratories will no doubt soon be established in other cities, and will prove of incalculable aid in feeding infants and delicate children. In New York a few milk companies are selling a comparatively clean milk obtained from farms where close attention is given to the housing and care of the animals and to the transportation of the milk. In most of these a few important points as regards the personal care of the animals and cleanliness in milking have been overlooked. . . . Bad methods result in part from ignorance and in part from carelessness. A few properly conducted dairies would do much to teach the average dairyman proper methods, while the increase of sales and higher price obtained would stimulate him much more."

GROWING PAINS.

THE old-fashioned growing pains have at last received scientific recognition from a German. They have long been mentioned by English and French writers as representing a certain complexus of symptoms occurring during the period of rapid physical growth. German writers have been very loth to recognize this condition as having any characteristic existence. In this position they were doubtless right, for to a great degree "growing pains" has been a diagnosis of convenience or mental perplexity. The greater number of these cases, which have now been studied by Karewski, of Berlin, will be found, if carefully examined, to be due to certain definite and discoverable causes not connected with the process of growth.

In the first place he points out that, as a rule, the pains are not seated in the bones but about the muscles, and are quite similar to those of slight apyretic attacks of rheumatism. All such cases should be referred to their proper cause.

There are, however, a certain number of cases in which there is a mild increase of temperature and more or less dull aching pain about the long bones. It is found that these occur in children who have been growing tall at an undue rate. Karewski thinks it possible that the active bodily exercise at this period of life has given irritation in some way to the epiphyseal lines of the long bones which naturally results in rapid proliferation and growth. When this condition is too marked, there is a mild inflammatory action, with pain and abnormally rapid growth. Consequently, he concludes that children have pain and fever not because they are growing too fast, but that they are growing too rapidly because they are really ill.

He apparently takes no notice of the frequent onset of these pains shortly before school-time, and their relation to pleasurable or dutiful exertions. In America, certainly, this factor plays some part in the cause of "growing pains."

ERYSIPELAS AND CANCER.

THE experiments which have been in progress for some time at the New York Hospital in reference to the cure of cancer — sarcoma, as well as ordinary carcinoma — have now proved so successful that Dr. W. B. Coley, of that institution, has prepared a report of them which is likely to prove of permanent value to the profession. The discovery of the fact that the accidental inoculation of a cancer patient with erysipelas was followed by marked improvement in the cancerous condition suggested to Dr. W. T. Bull the advisability of inoculating other patients with the erysipelatous virus. Accordingly, a number of cases

were set apart, and experiments were carried out upon them by Dr. Coley, under the direction of Dr. Bull. For the inoculations a pure culture of the streptococcus of erysipelas was used, and it was found that about twenty-five per cent. of the cases of carcinoma were cured, while in those of sarcoma the percentage of cures was as high as 40. In order to prove that the benefit thus noted was not due merely to local reaction, the inoculations were made in some instances at a distance from the cancerous tumor. As a rule, however, the injections were made directly into the tumor, and they were repeated every forty-eight hours. The reaction produced was similar to that of genuine erysipelas, though generally much milder in degree and passing away in from twenty-four to forty-eight hours.

In his report, Dr. Coley arrives at the following conclusions: First, that the curative effect of erysipelas upon malignant tumors is an established fact. Second, the action upon sarcoma is invariably more powerful than upon carcinoma in about the ratio of three to one; third, the treatment of inoperable malignant tumors by repeated inoculations of erysipelas is both practicable and not attended with great risk; fourth, the curative action is systemic, and probably due chiefly to the toxic products of the streptococcus; and, fifth, that the method of inoculation should not be employed indiscriminately until further clinical experiments have proved its limitations.

QUININE BLINDNESS.

AMONG the more serious and distressing effects of quinine upon persons over-susceptible to its administration that of blindness is not uncommon. Its onset may be sudden or gradual and not particularly influenced by the amount of quinine administered. To a physician not remembering this possibility the sudden occurrence of this symptom may be a source of considerable perplexity. So far there have been about sixty cases reported since 1841; and Pischl gives an interesting summary of them in connection with the report of a case of his own: [1]

"The blindness is usually absolute; in some there was only amblyopia of varying degrees. The blindness generally sets in suddenly, 'as though you had turned out the gas;' in many cases, however, vision fails gradually, so that it takes a few days before blindness is total. The duration of total blindness, the absence of all perception of light, varies within wide limits — from a few hours or a day or more to several weeks. In one case it lasted three months. In all cases sight was restored, though slowly, and nearly always imperfectly. Central vision returns first; the color-sense is restored later. In some cases the diminution of the sense of light is permanent. The field of vision, which is extremely contracted, enlarges slowly and probably does not wholly regain its normal extent."

Other symptoms noticed were strabismus and nystagmus. The pupil is generally dilated, irresponsive to light, though reacting somewhat to accommodation. The retinal vessels were diminished in calibre, and the optic discs very pale — a condition quite similar to that found in experiments upon dogs, which is best explained by supposing the effect of the quinine upon the vasomotor centre to result in constriction of the calibre of the vessels, and thrombosis. That the drug has some direct action upon the vessel-walls causing an endovasculitis is not impossible.

Pischl's own case, as fairly typical, is of interest. The patient, a man of forty, had been given some five-grain quinine powders for a malarial attack. After taking three powders at intervals of three hours, he began to have aural symptoms; but continued to take the powders for three doses more. The next morning he woke totally blind. Examination of the eyes gave these results:

"Both eyes, viewed externally, appeared normal. The pupils were motionless to light, but reacted slightly to accommodation. Central vision: R. E., $= \frac{6}{6}$: L. E., $\frac{6}{9}$. With $+$ 5 D. he read $\frac{15}{25}$ and $\frac{60}{130}$, but saw only one word at a time. The field of vision was contracted to five degrees. The ophthalmoscopic examination revealed pale optic discs with ill-defined borders, and blood-vessels about one-third the normal size." Treatment consisted of subcutaneous administration of strychnine and the use of the constant current to the eyes for fifteen minutes daily. A month after treatment was begun the field of vision for white was nearly normal, but the field for colors — blue, red, and green — was still contracted to three degrees. The last examination — about five months after the attack — showed hardly any changes. The field of vision for white was still nearer the normal, and the optic disc was more sharply defined.

[1] Medical News, July 29, 1893.

AN ARCHITECTURAL COMPETITION FOR NURSES.

THE *Hospital*, an English journal devoted to nursing and hospital news, has adopted the suggestion made by Dr. Billings at Chicago, that superintending nurses should make known their ideas upon the proper construction and arrangement of homes for nurses. Accordingly, it offers two prizes — a first prize, of seventy-five dollars (£15), and a second prize of twenty-five dollars (£5) — for the two most satisfactory plans for a nurses' home, for competition among "lady superintendents," matrons or nurses, of the British Empire, the United States or the countries of Europe.

The following details are published: Competitors must send in the proposals in type-written form, which must consist of two parts: (1) A statement setting forth categorically all the rooms and accommodation which are necessary in order to make the proposed nurses' home a model of what such an establishment should be where room is provided for from fifty to one hundred nurses; (2) a second statement and plan prepared in similar form which provides accommodation for from one hundred and fifty to two hundred nurses. Each of these specifications (1) and (2) must be accompanied by plans drawn to uniform scale, and must explain how the proposed home for nurses can be extended, should the growth of the establishment render such a step necessary.

The conditions are as follows:

(1) The competitors must send their names and addresses by November 1, 1893, to Dr. J. S. Billings, U. S. Army, Washington, D. C., and all plans and proposals presented for competition must reach Dr. Billings not later than *January* 1, 1894.

(2) Dr. Billings, Dr. Henry M. Hurd, Superintendent of the Johns Hopkins Hospital, Baltimore, MD.,

and Miss Sophia S. Palmer, Superintendent of the Garfield Hospital, Washington, D. C., are appointed as the judges of the papers and plans submitted in this competition, and their decision will be final. Should the papers and plans submitted demand such a course, the judges reserve the right of withholding any award.

(3) All proposals must be type-written on one side of the paper only, and all plans must be drawn to a uniform scale of one-eighth inch to one foot.

It is proposed to publish an account of the competition with a selection from the competing plans.

TREATMENT OF HEAT-STROKE BY CHLOROFORM.

KOERFER[1] reports the successful treatment of cases of severe heat-stroke by means of chloroform. The terrible exhaustion incident to the severe convulsions of heat-stroke, is certainly no small factor in the fatal effect. Those who have watched cases of heat prostration treated with thorough application of cold baths and cardiac supportives, must have felt the incompleteness of the treatment, in seeing the continuance of the convulsions, even during the bath; and the great exhaustion of the heart following each seizure. As Koerfer points out, the circle is a vicious one; the overheated blood acts as an irritant to the cardiac ganglia and so causes excessive action of the heart's muscle already weakened by the action of heated blood on its fibres. The same hot blood excites the nervous centres, raises the reflex irritability, while the resulting convulsions exhaust the nervous system and still further augment the heat production of the body. Cooling of the body, elimination of heat by baths, is of partial service only, if the over production of heat is allowed to go on. This excessive formation of heat seems due largely to the over irritated nervous centres and it was for this reason that Koerfer treated his cases with chloroform inhalation. The patient, a soldier, had succumbed after a hard day of field practice, and presented a typical picture of severe thermic fever. The convulsions were severe, general and frequent, occurring on the slightest external irritation. There was increasing cyanosis, a very rapid, weak pulse, which failed almost entirely during the convulsion. Respiration was rapid and superficial. The convulsions, though still general, were becoming weaker, and in spite of baths and stimulants the patient was rapidly failing. At this point light chloroform inhalation was tried in the hope of quieting the convulsions. The effect was immediate; after a few breaths the inspirations became deeper, the color improved and the tonic convulsions ceased. The heart's action in particular, was improved, becoming steady, where it had been tumultuous, stronger, slower. At the end of an hour and a quarter the breathing was quiet and deep, the pulse regular at seventy, and the chloroform was withdrawn and a small dose of morphia given subcutaneously. After a two hours' quiet sleep the patient woke conscious and convalescent. The after history of the case was not remarkable.

Another case gave the same happy result. It did not appear that the chloroform anæsthesia was more dangerous in the condition of sunstroke, than at other times, and the application of this remedy is certainly worthy of further trial.

[1] Deutsche Med. Wochenschrift, No. 28, 1893.

METEOROLOGICAL RECORD,

For the week ending August 5, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r.*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...30	29.93	72	81	64	63	64	64	W.	S.E.	7	8	F.	F.	
M..31	29.90	72	81	64	54	69	62	S.E.	S.	4	9	C.	O.	
T.. 1	29.84	71	75	67	88	79	84	S.	S.E.	4	8	O.	O.	0.01
W.. 2	30.12	72	81	64	63	43	53	N.W.	N.	16	6	C.	C.	
T.. 3	30.18	71	82	60	52	60	56	N.W.	S.	3	12	C.	C.	
F.. 4	30.08	72	81	64	61	65	63	S.W.	S.	9	6	F.	O.	
S.. 5	29.91	63	65	61	100	87	94	N.	N.	9	4	R.	O.	1.87
☞														1.88

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 5, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	829	438	33.00	12.00	24.84	.60	3.72
Chicago	1,438,000	—	—	—	—	—	—	—
Philadelphia	1,115,562	468	239	29.19	7.35	23.52	1.21	2.31
Brooklyn	978,394	469	262	31.92	8.61	27.09	.42	2.52
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	274	132	29.52	7.56	24.48	1.08	2.88
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	114	55	33.44	7.24	25.52	4.40	.88
Cincinnati	305,000	109	52	26.68	11.04	15.64	6.44	1.84
Cleveland	260,000	149	74	8.04	.67	1.34	3.35	.67
Pittsburg	265,749	197	75	46.50	3.72	28.83	2.79	3.72
Milwaukee	250,000	111	77	52.20	2.70	42.30	1.80	3.60
Nashville	87,754	33	8	27.27	15.15	15.15	3.03	—
Charleston	65,105	31	14	25.84	12.92	22.61	—	—
Portland	40,000	16	4	31.25	12.50	25.00	6.25	—
Worcester	96,217	49	34	53.04	6.12	46.92	—	—
Fall River	87,411	50	34	54.00	2.00	54.00	—	—
Lowell	87,191	55	36	45.50	7.32	45.50	—	—
Cambridge	77,100	41	17	34.16	17.08	31.72	—	—
Lynn	62,656	31	—	38.52	9.63	35.31	—	3.21
Springfield	48,684	21	9	28.56	14.28	28.56	—	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	30	19	30.00	3.33	30.00	—	—
Holyoke	41,278	—	—	—	—	—	—	—
Salem	32,233	21	9	37.88	4.76	33.33	4.76	—
Brockton	32,140	10	7	40.00	—	30.00	—	—
Haverhill	31,396	18	10	50.00	11.11	44.44	5.55	—
Chelsea	30,264	15	6	20.00	6.66	13.33	—	—
Malden	29,394	16	5	37.50	6.25	31.25	—	—
Newton	27,556	—	—	—	—	—	—	—
Fitchburg	27,146	21	12	42.84	17.04	42.84	—	—
Taunton	26,972	18	6	11.11	16.66	11.11	—	—
Gloucester	26,688	10	2	—	—	—	—	—
Waltham	22,058	4	2	75.00	—	75.00	—	—
Quincy	19,642	8	5	37.50	12.50	37.50	—	—
Pittsfield	18,802	6	4	33.33	—	33.33	—	—
Everett	16,585	6	3	50.00	16.66	50.00	—	—
Northampton	16,331	3	1	—	66.66	—	—	—
Newburyport	14,073	6	1	33.33	—	33.33	—	—
Amesbury	10,920	4	1	—	25.00	—	—	—

Deaths reported 3,188: under five years of age 1,670; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fevers), 947, diarrhœal diseases 736, consumption 276, acute lung diseases 161, diphtheria and croup 76, typhoid fever 41, whooping-cough 33, scarlet fever 19, measles 17, cerebro-spinal meningitis 13, malarial fever 10, erysipelas 2.

From whooping-cough New York 11, Philadelphia 6, Pittsburgh 5, Brooklyn 3, Cincinnati 2, Washington, Cleveland, Milwaukee, Brockton, Haverhill and Chelsea 1 each. From scarlet New York 4, Boston, Pittsburgh and Milwaukee 3 each, Washington 2, Philadelphia, Cincinnati, Cambridge and Woburn 1 each. From measles New York 8, Pittsburgh 4, Philadelphia 3, Milwaukee and Worcester 1 each. From cerebro-spinal meningitis New York 6, Brooklyn, Cleveland and Worcester 2 each,

Somerville 1. From malarial fever Brooklyn and Nashville 3 each, New York 2, Cleveland and Charleston 1 each. From erysipelas New York and Brooklyn 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,322,429, for the week ending July 29th, the death-rate was 22.6. Deaths reported 4,478; acute diseases of the respiratory organs (London) 182, diarrhœa 850, diphtheria 96, whooping-cough 94, measles 87, scarlet fever 69, fever 45, small-pox (London 8, Bradford 4, Bolton and Manchester 1 each) 16.

The death-rates ranged from 11.2 in Derby to 34.1 in Blackburn; Birmingham 25.2, Bradford 22.4, Bristol 14.4, Croydon 20.6, Halifax 15.3, Leeds 22.0, Liverpool 31.5, London 21.0, Manchester 27.8, Nottingham 19.4, Portsmouth 24.9, Sheffield 22.8, Wolverhampton 29.7.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 5, 1893, TO AUGUST 11, 1893.

FIRST-LIEUT. CHARLES E. B. FLAGG, assistant surgeon, will proceed to the Yosemite National Park, California, for duty with Troop I, 4th Cavalry, relieving CAPTAIN LEONARD WOOD, assistant surgeon.

Upon being thus relieved, CAPTAIN WOOD will return to his station, the Presidio of San Francisco, Cal.

Leave of absence for one month, to take effect about August 16, 1893, is granted CAPTAIN HENRY S. T. HARRIS, assistant surgeon, Fort Keogh, Montana.

Leave of absence for one month, to commence about September 5, 1893, is hereby granted to MAJOR J. V. LAUDERDALE, surgeon, U. S. A.

Leave of absence for three months, to take effect on or about September 4, 1893, is granted MAJOR GEORGE W. ADAIR, surgeon, U. S. A.

Leave of absence for one month and fifteen days, to take effect when his services can be spared, is granted FIRST-LIEUT. FRANK R. KEEFER, assistant surgeon.

By direction of the acting Secretary of War, the extension of leave of absence, on account of sickness, granted CAPTAIN MARLBOROUGH C. WYETH, assistant surgeon, is still further extended two months.

CAPTAIN MARCUS E. TAYLOR, assistant surgeon, having been found incapacitated for active service, by an Army Retiring Board, will proceed to his home and report thence by letter to the Adjutant General of the Army.

Leave of absence for one month is granted FIRST-LIEUT. ALFRED E. BRADLEY, assistant surgeon, U. S. A.

Leave of absence for one month, to take effect upon the return from detached service of FIRST-LIEUT. HENRY C. FISHER, assistant surgeon, is granted CAPTAIN EUGENE L. SWIFT, assistant surgeon.

PAN-AMERICAN MEDICAL CONGRESS.

SECTION ON OPHTHALMOLOGY.

The meeting of the Section will be held in the Arlington Hotel in Washington, D. C., September 5, 6, 7 and 8, 1893. The session of September 6th will be devoted to the discussion of the subject of "The Detection and Correction of Astigmatism," with the reading of papers upon this subject. The meeting of September 7th will in like manner be given to a consideration of "The Detection and Correction of Muscular Errors."

JULIAN J. CHISOLM, M.D., *Executive President*, Baltimore, Md.
GEORGE M. GOULD, M.D., *English-speaking Secretary*, Philadelphia, Pa.
J. HARRIS PIERPONT, M.D., *Spanish-speaking Secretary*. Pensacola, Fla.

SECTION ON PEDAGOGY.

The meetings of this Section will be held in Washington, D. C., September 5, 6, 7 and 8, 1893.

Tuesday, September 5th. — At 3 P. M. — The President's Address: "Medical Education in the United States." At 4 P. M. — "The Importance of Physiological Chemistry as a Part of Medical Education." By R. H. Chittenden, Ph.D., Professor of Physiological Chemistry, The Sheffield Scientific School, New Haven, Conn. At 5 P. M. — "The Importance of Bacteriological Study to Medical Students, and the Scope of Instruction." By Harold C. Ernst, Assistant Professor of Bacteriology in the Harvard Medical School, Boston, Mass.

Wednesday, September 6th. — At the close of the General Session, 11 A. M. — "A Demonstration of the Cæsarean Section and the Porro Operations." By Gustav Zinke, M.D., Cincinnati, O. At 3 P. M. — "A Contribution to a Study of Methods of Medical Education in the United States." By Bayard Holmes, M.D., The College of Physicians and Surgeons, Chicago, Ill. At 4 P. M. — "Methods of Teaching Clinical Medicine." By F. C. Shattuck, M.D., Professor of Clinical Medicine in the Harvard Medical School, Boston, Mass.

Thursday, September 7th. — At the close of the General Session, 11 A. M. — "A Demonstration with Colored Crayon, of Methods of Instruction in Anatomy and Surgery." By M. H. Richardson, M.D., Assistant Professor of Anatomy in Harvard University. At 3 P. M. — "The Methods of Medical Education." By Victor Vaughn, M.D., Ann Arbor, Mich. At 4 P. M. — "The Aims and Methods of Medical Education." By W. C. Dabney, M.D., University of Virginia.

Friday, September 8th — At 11 A. M. — "The Relation of Biology to Medical Education." By W. T. Sedgwick, Professor of Biology in the Massachusetts Institute of Technology, Boston, Mass. At 12 A. M. — "A Demonstration of the Physiological Action of the Heart." By J. P. Sawyer, M.D., Cleveland, O.

It is intended to obtain the use of an amphitheatre for demonstrations of special subjects. Any contribution to the programme of the Section, either by paper or discussion, is solicited from those especially interested in the problem of Medical Education.

J. COLLINS WARREN, M.D., *President*, Boston, Mass.
CHARLES L. SCUDDER, M.D., *English-Speaking Secretary*, Boston, Mass.
WM. F. HUTCHINSON, M.D., *Spanish-Speaking Secretary*, Providence, R. I.

RECENT DEATHS.

GEORGE F. BIGELOW, A.B., M.D., M.M.S.S., died in Boston, August 10th, aged seventy-three years. He was one of the founders of the Y. M. C. A. in Boston. During the war he allied himself to a reserve corps of physicians in Boston, devoted to the good of the soldiers, and was present at both battles of Bull Run, of Fredericksburg and the Wilderness.

JAMES A. LATIMER, M.D., M.M.S.S., died at Laconia, N. H., August 11th, aged forty-six years. He was a well-known physician in East Cambridge and for four years prison physician to the Massachusetts State Prison at Charlestown.

SAMUEL E. MUMFORD, M.D., died in Princeton, Ind., July 31st. He was a surgeon during the War of the Rebellion and was at one time President of the Indiana State Medical Society.

FRANKLIN LANE, M.D., died in Orange, N. J., July 24th, aged seventy years. In addition to his medical practice he was for a long time literary editor of the *Baltimore-American*.

BOOKS AND PAMPHLETS RECEIVED.

Prospectus of the London Post-Graduate Course. Fourth Year. Winter term. 1893.

Faradism as an Analgesic in the Loosening of Joint-Adhesions. By Douglas Graham, M.D. Reprint.

Boston University School of Medicine, Twenty-first Annual Announcement and Catalogue. July 1893.

Fifty-third Annual Announcement of the Missouri Medical College, Session of 1893-94, and Catalogue of Session, 1892-93.

The Annual Report of the Department for the Insane of the Pennsylvania Hospital, for the year ending fourth month 19th, 1893.

A New and Safe Method of Cutting Œsophageal Strictures. The Surgery of Gall-Stone Obstruction. By Robert Abbe, M.D. Reprints. 1893.

Entéroplexie. Par le Dr. Adalbert Ramaugé. Mémoire Présenté au Concours de Médecine International Sub-Américain, le 20 Janvier, 1893. Buenos Aires. 1893.

Punctured Wounds of the Feet; A Report of Two Hundred and Three Cases Treated at the Medical Bureau, World's Columbian Exposition, during the Construction Period, June 1, 1891, to May 1, 1893. By S. C. Plummer, A.M., M.D. Reprint.

Missouri State Medical Directory, containing a carefully prepared list of Physicians, Dentists and Druggists, together with Colleges, Hospitals, Medical Associations and Societies throughout the State. Medical Fortnightly Press. St. Louis, Chicago. 1893.

Benjamin Franklin and the University of Pennsylvania. Edited by Francis Newton Thorpe, Ph.D., Professor of American Constitutional History in the University of Pennsylvania. Washington: Bureau of Education, Circular of Information No. 2. 1892.

Reactions: A Selection of Organic Chemical Preparations Important to Pharmacy, in Regard to their Behavior to Commonly Used Reagents. By F. A. Flückiger, Ph.D., M.D. Translated, revised and enlarged by J. B. Nagelvoort. Detroit: George S. Davis. 1893.

The Curability of Narcotic Inebriety. The Mattison Method in Morphinism. Twenty-seven Years Addiction to Opium; Recovery; Relapse. Trional, the New Hypnotic; Its Use in Narcotic Habitues. The Etiology of Narcotic Inebriety. Cocaine Inebriety. By J. B. Mattison, M.D. Reprints. 1892-93.

Lecture.

SECTARIANISM IN MEDICINE.[1]

BY E. R. CUTLER, M.D., WALTHAM, MASS.

(Concluded from No. 7, page 162.)

THESE hospitals are twenty-six in number, and were opened in the following chronological order:

Hospital.	Location.	Date.
Lowell,	Lowell	1840
St. John's,	Lowell	1867
City,	Worcester	1871
St. Joseph's,	New Bedford	1873
House of Mercy,	Pittsfield	1874
City,	Salem	1874
City,	Springfield	1879
General,	Lawrence	1882
City,	Haverhill	1882
City,	Lynn	1883
North Adams,	North Adams	1883
Anna Jacques,	Newburyport	1884
St. Luke's,	New Bedford	1885
Waltham,	Waltham	1885
Cambridge,	Cambridge	1886
Newton Cottage,	Newton	1886
Fall River,	Fall River	1888
Morton,	Taunton	1889
Clinton,	Clinton	1890
Rufus S. Frost,	Chelsea	1890
Quincy,	Quincy	1890
Somerville,	Somerville	1892
Malden,	Malden	1892
Marlboro',	Marlboro'	1892
Holyoke,	Holyoke	1893
Framingham,	Framingham	1893

Note the rapid increase. In 1840 one, and no other till 1867. From 1870 to 1880, five. From 1880 till 1890, eleven. From 1890 to now, nine. Thus seventeen, or nearly two-thirds of the whole number, have been established in the last ten years. Hospitals are also in process of development in the following places, and doubtless in others unknown to me, namely, Charlestown, Brockton, Beverly, Natick, Gloucester, Fitchburg, Melrose and New Bedford. Of these twenty-six hospitals, fourteen are conducted like the larger metropolitan hospitals; that is, all the work is done by the staff, and no allusion is made to sect or school. No provision is made for other doctors to practise in them, or for patients to have any choice of attendant. All of these hospitals opened previous to ten years ago pursued this plan, but since that time eleven out of the seventeen have modified or totally changed it. What has brought about this change? The question of homœopathic recognition in the by-laws and appointment on the staff has done it. This question has been a vital one in the life of all these recently established hospitals, and will be in the case of every one to be established hereafter. It can no longer be ignored in a single instance. The public has watched the experiments already made, and is well posted. Hence I say, on account of the number and influence of these institutions, the question of professional relations is becoming one of vital concern to us all. The right way to treat it should soon be evolved and universally recognized. If serious mistakes have been made, the fact should be made plain to those who must grapple with the question in the future, that they may avoid them. If any way of settling it can be devised which effects an honorable and permanent compromise between a clamorous public and a resolute profession, it should be urgently recommended by the general medical society or its representatives, the councillors.

I shall try to give you the present status of the experiment. No two of these eleven hospitals have adopted precisely the same details, but for brevity's sake I will generalize and classify as far as possible.

Only two still use the word "allopathic," namely, the Fall River and the North Adams Hospitals. Newton used it first of all, but dropped it in its later reports. The word "regular," as a substitute for it, is used by Quincy and Clinton. The expression "member of the Massachusetts Medical Society" is used in four cases in antithesis to "member Massachusetts Homœopathic Medical Society," and the appointments expressly required to be divided *pro rata* between them. The word "school" appears in the by-laws of all those places which recognize any professional distinctions at all, except Malden, which consistently adheres throughout to the language "fellow of the Massachusetts Medical Society" and "member of the Massachusetts Homœopathic Medical Society." In all of this class, patients are allowed to choose the "school" by which they shall be treated, excepting Malden again, which allows choice of member of one of the above societies, that is, the member on staff duty at the time. In a few of these places other physicians beside those on the staff have the privilege of treating private, paying patients in the hospital by permission of members of the medical boards. The plan pursued in Malden, of distinguishing practitioners simply according to their membership in the two chief medical societies, is ethically unobjectionable, but I think not so good as the one outlined below.

In only one of all these hospitals has the question of medical sects been completely ignored, and still a fair attempt been made to conciliate sectarian opinion by ample and yet honorable concessions. This scheme has been carried out in Waltham, and is as follows:

No allusion whatever is made to distinctions among legally qualified physicians. All alike may introduce either free or paying patients into the hospital, and treat them there. The hospital simply furnishes board, nursing and medicine, and must be paid for the same before the doctor can receive a fee. All patients, free and paying alike, may choose their medical attendant by personal names, not by sectarian title (but, of course, changes are not allowed on frivolous grounds). Patients having no choice are treated by the staff, in all cases gratuitously; but the latter are not precluded from having private paying patients while on duty. Invidious distinctions have thus been entirely ignored, while the doors have been thrown more widely open than in any other general hospital known.

An obvious criticism of this plan is that confusion must arise from having several doctors making their visits at the same time. It cannot be denied that in a large hospital this criticism might have considerable force, and the difficulty could, perhaps, only be met by having different nurses accompany different attendants. I feel confident that it could easily be surmounted by this or some other means; and it would not often arise in such hospitals as are here under discussion. As a matter of fact, it has not yet caused any serious inconvenience in the Waltham Hospital, where from twenty to thirty patients are usually under treatment by five or six different physicians.

It has usually been found that in emergency cases, such as severe accidents, the subjects being often stran-

[1] Delivered before the Middlesex South District Medical Society.

gers, the regular staff attendant has been preferred. But these cases are comparatively few, so that actually only about one-sixth of the whole number of patients is attended by the staff officially. Nearly all cases, even of accident, are brought in by some doctor who has seen the case outside; and he retains it, if so decided between him and the patient.

Of course, this scheme is not satisfactory to the homœopaths, because they wish special recognition; but it is obviously perfectly fair to all, and would be universally acceptable, I believe, if one example of the surrender of principle had not infected the whole State.

The facts above set forth illustrate two distinct methods of dealing with the question herein discussed: (1) The method of explicit recognition of schools or sects in the profession, and an attempt at a *pro rata* representation of the same on governing boards and practising staffs, the latter to have almost or quite exclusive charge of the hospital service. (2) A total ignoring of intra-professional distinctions, with the establishment of such regulations as shall practically secure to each individual in the community the enjoyment of all the benefits of the institution.

I will endeavor fairly to contrast the two methods.

(1) That of expressed recognition.

It has an appearance of great fairness, and thereby secures the favor and pecuniary support, not only of the homœopathic sect, but is equally pleasing to the non-homœopathic layman, who can seldom comprehend the ethical argument or sympathize with our sensitiveness to it. The whole subject is for him cleared of its difficulties when we abandon it. The homœopathic practitioner is satisfied because he secures an official endorsement of his sectarian character. That these considerations have great practical weight is shown by the fact that in the places named they have overcome the objections of the general profession; but, on the other hand, it must be said that this arrangement practically abandons the one essential point in our long contention, namely, that medical sectarianism is professional immorality. On this ground alone can we consistently oppose it, and on this ground we ought forever to stand. The worst feature of the arrangement is that it not only recognizes homœopathic sectarianism, but it in all cases implies, and in some expressly allows, that we, too, constitute a sect or school, namely, the "allopathic" or the "old" or the "regular" school. Now I, for one, indignantly protest against this degradation. Must the enormous majority of medical men assume or accept a partisan appellation because a small minority choose to adopt one? The only title any of us rightfully possesses is "Doctor of Medicine." Anything other than this indicates a self-imposed limitation. It should bind one who adopts it to the strictest exclusiveness in his work, otherwise it has no significance. We ought steadfastly to decline to enter into any relation or discussion which puts the general profession on the same level with a sect. I can but deprecate the humiliation involved in the position of those who accept a diminutive title simply for the convenience and personal benefit of a group of sectaries. For it can in no way be claimed that the good of the public or the institution is directly subserved by the use of these titles. True, certain beneficent institutions seem to be pecuniarily benefited by the unworthy attitude of the doctor; but the public can never be a gainer when it pays its money to debauch the sensitive conscience of a high-minded profession. Already is charlatanism in insidious forms too rife among us, but never has it appealed to us with arguments more specious or more powerful than in this instance. Again, the method of sectarian recognition involves such puerile details as the division of single wards, the assignment of the cases to the separate "schools" by a matron or other unprofessional person incompetent to judge of their needs, and the begging of the whole important question of medical treatment by submitting it to the ignorant patient on his entrance to the hospital.

It virtually pledges the practitioner accepting a position under these conditions beforehand to a certain kind of treatment; for, let it be noted, he does not appear in this arrangement as a private individual, at liberty to use the widest scope of professional judgment, but as a member and representative of a sect. The patient might as properly be given the liberty to dictate his diet on entrance as to choose his medical treatment. The circumstances here are very different from those surrounding a case in private practice. If a patient chooses a so-called homœopathic attendant at home, and the latter applies non-homœopathic treatment, it involves merely the deception of the individual patient who undoubtedly *is* deceived, and also a question in casuistry on the part of the doctor. If he can persuade himself that such conduct is right, that is one thing. But it is quite another when in a public institution to whose service he was chosen in an expressly sectarian character, he is selected by a patient, who quite likely has no personal acquaintance with him or his professional skill, for the direct purpose of securing the kind of treatment indicated by his title. The deception, in case any other than the chosen treatment is used here, is shared by the administration, and the patient is doubly wronged, because in the hospital he practically loses the power to change his attendant if he recognized the fraud. He might, perhaps, remonstrate that if he had supposed his case required surgical or any other than strictly homœopathic treatment, he would have chosen differently, but it would probably avail him little. At any rate, the stultification of the practitioner is evident.

(2) The plan of ignoring all distinctions and reducing the work of the staff to the lowest possible limits, and electing the same by annual ballot of a representative body of trustees.

This plan not only appears to be, but actually is, absolutely fair to all. True, it does not recognize self-imposed titles; but neither does it compel any one to accept titles imposed by others.

It recognizes the legal equality and the professional dignity of all medical men. It provides perfectly for the preferences (and even prejudices) of each possible patient, while refusing the preposterous claim of such to dictate his treatment, which he does when he chooses a "school" instead of an individual. It should make the hospital an object of interest and pride to the whole profession, and prevent the jealousies and rivalries which arise under the system of an indefinite appointment of a staff having exclusive charge of all patients entering. It would tend strongly to break down sectarian distinctions outside its walls, by promoting acquaintance, discussion, comparison. It would secure a united and enthusiastic support of all classes of people, and greatly add to the amount and efficiency of its work and its consequent value to the public and

the profession. It simply prevents the hospital from becoming the tool of sectarian propagandists.

TWO ESSENTIAL DIFFICULTIES IN THE PRESENT SITUATION.

So much for a pretty general review of the evil results of sectarianism from a professional point of view.

Having to a degree cleared up the diagnosis and symptomatology of the case, I proceed without delaying upon clinical history or prognosis, to say that observation and discussion, together with the strong tendency to recovery inherent in so vigorous a body as the medical profession, have already eliminated numerous complications and collateral symptoms which have greatly obscured the situation; and it is now pretty plain that the really essential and intractable features of the malady are two, namely, bigotry and intolerance on the one hand (leading to non-intercourse and even measures of repression, such as debarring or ejecting from societies and hospitals), and, on the other hand, a sophistical defence and disingenuous use of an offensive partisan title.

Let us examine these two radical difficulties.

(1) The conduct of the main body of the profession has been and still is bigoted and intolerant. I believe it to be true that very few non-sectarian physicians know anything worth mentioning about either the theory or practice of the homœopaths. Most of us are not on such a footing with any such individually as to frankly and freely discuss the subject with him. Most of us, again, have little time or inclination to read homœopathic books or journals. Very few of us, I believe, have ever visited a homœopathic hospital. True, we are all more or less familiar with the average homœopathic practitioner, but are inclined to make much of his inconsistencies and his failures, and correspondingly little of his successes, or to ascribe them to his use of other than homœopathic means.

Most physicians have a feeling of bitterness toward these men; and some, even still, call them all either knaves or fools. In the past they have been systematically ostracized; and some have been expelled from societies with which they had been long connected and in which they wished to remain.

Now, to entertain such feeling and use such language, and proceed to such extremes of harsh treatment, while knowing really not very much of the merits of the case, I pronounce bigoted and intolerant to a most reprehensible degree. So long as the above remains true, it is an effectual bar to union.

(2) Offensive partisan titles are still used; and, on the part of the homœopaths, this use is disingenuous and its defence sophistical. The use of distinctive titles by non-sectarian practitioners was never their choice, but they were almost compelled to use some one of them by the voluntary assumption of others by the sectaries. Here was a fatal surrender, as already explained; and the titles accepted or adopted were scarcely less objectionable than that of homœopath. In spite of the difficulty and inconvenience they should have steadfastly refused to accept any title whatever except their legal one of Doctor of Medicine. Look briefly at these terms "allopathic," "regular," "old school."

The expression "allopathic" indicates no accepted principle in medicine, and applies to no class of practitioners.

The impudence of those who would, if they could, force medical men who do not believe in homœopathy as a general principle, and who refuse to place the slightest limitation upon their practice to accept the title "allopath," is colossal. As well might a man who calls himself a Christian, insist that all who do not accept his belief and practice should call themselves heathen, because that word is the proper antithesis to the other. Even if our sectarian friends can say that our practice, as compared with theirs, is allopathic, does it follow that we must adopt the title, in order that they may be aided in setting themselves up as a distinct class before the public?

The word "regular" has been generally accepted by the profession as the least objectionable term, but it is really far less appropriate than "allopath." It is precisely as applicable to homœopaths, if legally prepared to practise medicine, as to any one else. "Old school" is a misnomer of the most ludicrous kind. Modern non-homœopathic therapeutics, so far from being old, are so new that a treatise on them is antiquated in ten years, while Hahnemann's works of sixty or eighty years ago are still the standard gospel of homœopathy. The word "school," which means "the followers of a teacher, or the adherents of a system of doctrine," is likewise wholly inapplicable to the general profession, which long ago abandoned authority and theory as their guides in treatment, and are following as rapidly as the nature of the case will allow in the way blazed before them by scientific investigation. In fact, no expression could more accurately describe two distinctive features of homœopathy than "old school."

Other terms which are frequently used as descriptive of modern therapeutics are "scientific" and "rational"; and if used in a comprehensive sense to include the spirit and aim as well as the details of medical practice, they are correct. But when used distinctively to characterize non-homœopathic medication, they are far too pretentious. Indeed, most, if not all, homœopathic apologists lay claim to the term "scientific," for the reason that, as they say, their system is based on the one natural law of cure. This claim is absurd, for two reasons: (1) It begs the question; for the immense majority of scientific men see no such comprehensive law, but only an occasional, perhaps frequent, coincidence; (2) Their practical success is too small to base any such claim upon. If this law (or fact or rule or guide) is scientific, it must be unvarying and without exception; and while giving full weight to the complicated conditions of the case and to the great imperfection in the present results of homœopathic provings, it appears to me that the fruits of nearly a hundred years are truly disappointing and pitiful.

I have tried a few times to find some item of homœopathic practice which I could test for myself, without resorting to indices and repertories and provings, but with little result. I have tried to observe whether the success of my homœopathic neighbors was so much greater than my own as one would expect if they possessed a guide so greatly superior to my very unsatisfactory one, and I have not thought that it was. I have seen columns of *ex-parte* statistics; but, for reasons well known to you, I have not been convinced by them.

I wrote a few weeks ago to a man well known to some of you, a graduate of Harvard University and of one of the New York schools of medicine, and later an interne in some of the New York hospitals, but

who later embraced homœopathy, and who has been for several years Professor of Materia Medica in the University of Michigan. I put to him this question: "Have you yet found either a recognizable morbid condition or a group of subjective symptoms which you feel reasonably sure you can treat successfully under homœopathic indications which you could not have treated successfully before adopting homœopathy? He replies as follows: "My answer is 'No.' But it has rarely occurred that, since taking up with homœopathy I have preferred to use a drug not selected as homœopathic." Now if *similia* is a scientific law, or even an empirical fact, it certainly is disappointing that my friend, who is familiar with the ordinary practice as well, should not be able to give me a single practical statement by which I could test for myself the value of the doctrine. Now I submit again that here is small basis for the foundation of a sect and assumption of a distinctive title. The word "empirical" is the most correct one to apply to all medical practice — homœopathic included — because all is very largely based on observation and experience; but the word carries an opprobrious significance which is unjust to all.

In fact, these and all other descriptive adjectives should be unconditionally repudiated, and not even allowed for purposes of discussion; and the legal, generic, all-sufficient title of Doctor of Medicine or physician adhered to.

Now we reach the word "homœopathic"; and here we get at the true inwardness of the second obstacle to the unity of the medical profession, and a formidable one it is. It has been discussed with warmth within the homœopathic ranks; but I judge the prevailing sentiment there to be strongly in favor of its continued use, though its gradual disappearance from the signs and cards of individual practitioners indicates the recognition of the fact that its employment there is, to say the least, in bad taste, and is to my mind also an omen of a better day when all shall acknowledge that its use anywhere is unprofessional.

What now are the reasons alleged for the use of the terms "homœopathic," etc.? There is published, in the Transactions of the Homœopathic International Congress of 1891, an address entitled, "The Ethical Basis of the Separate Existence of the Homœopathic School." After acknowledging that the claim that better medication by one school is not a sufficient ethical reason for its separate existence, the author makes two assumptions; first, that the general profession is not "sufficiently emancipated from conscious personality, rancor, jealousy and vindictiveness" to administer upon the ethics of the case — to which I agree; he then assumes that his audience is free from these disqualifications — to which I entirely disagree. He then proceeds to give the usual ridiculous libel upon non-sectarian practice, and contrasts it with homœopathy, to the glorification of the latter. On the basis of this parallel, together with the fact that empirical medicine has never developed any general law of therapeutics, and the assumed comparative unfitness of his opponents to adjudge the question, he rests his argument. The remainder of the article is a high-pitched rhetorical scream, in which homœopaths are urged to an onslaught on the general profession all along the line, with the purpose of its complete subjugation. In the year 1885, Dr. Conrad Wesselhoeft, of Boston, gave a lecture on homœopathy before the Boylston Medical Society of the Harvard Medical School; and in 1886 Dr. V. Y. Bowditch replied in an address before the Massachusetts Homœopathic Society.

As I am not concerning myself with the comparative merits of systems, but, on the contrary, trying to show that such comparisons are not relevant to the question of medical unity, I will not analyze these excellent papers. But in the preface to his lecture (which I advise you all to buy of Otis Clapp & Sons, and read for yourselves) Dr. Wesselhoeft gives the true and only reason for the separate existence of the homœopathic school and the use of the distinctive title, namely, that the distinction may be kept before the public. He reaches the conclusions that (to quote), "it would be a wrong on our part, a gross deception of ourselves and the public if we disavowed or denied our principles, and failed to define our practice by an appropriate term." Again, he says: "After giving up all claims of perfection and infallibility, it by no means follows that a physician accepting the method known as homœopathy must of necessity practise it exclusively. He may do so if he chooses, or he may not apply it always. But, "if a physician adopts any therapeutic method, his colleagues, no less than the public, have a right to know what that method is. Any secrecy or concealment of methods is quackish. Not the publicity, but the concealment of convictions, would be sailing under false colors." He then proceeds to charge the profession with sailing under false colors because they do not openly acknowledge and profess that they practise allopathy.

When one fairly takes in this astounding turn of logic it is liable to produce a state of asphyxia.

When we realize that we are the ones who are quackish and are deceiving the public because we do not openly avow the allopathic principle, according to which we are really practising, we can only hang our diminished heads and plead that we did not know it.

This line of reasoning would not only justify the hypnotist and the electro-therapeutist in announcing their special method of practice, but even require them to do so because they believe in and employ it when they choose. The logical sequence really is that the individual who announces that he "doctors both ways" is the most honorable and consistent of all. The disingenuousness of this position that the homœopath is the really honest man is illustrated by the well-known fact that he seldom tells his patient what medicine he is giving him, even if he is asked to do so, while the physician who writes a prescription, though in Latin, according to a bad custom, cannot effectually conceal his treatment even if he would.

True, it is often best for the patient not to know what medicine he is taking, because he really knows nothing about its action, and his prejudiced or ignorant ideas may be a serious obstacle to a favorable result. But it is equally true that he knows as little about the general system as about the special drug.

If he prefers the homœopathic system on theoretical grounds, his conclusion is a mere instance of the *reductio ad absurdum;* for not even the educated homœopathic physician himself can give any scientific or satisfactory explanation of the doctrine of Similars (see preface to Dr. Conrad Wesselhœft's translation of Hahnemann's "Organon"). If he prefers homœopathy on practical grounds, the fact looms up that no homœopath nowadays claims to adhere strictly to the

system, so that the patient does not know whether he has been treated homœopathically or not. In either case his opinion is absolutely worthless, and to defer to it or appeal to it, as is done in the use of the sectarian title is a thoroughly quackish subterfuge.

It is recognized in all the professions that it is unworthy and shameful for a man to blazon before the public his skill, his specialty, his success, his educational advantages, or even his methods and opinions. The only possible object of assuming a title indicating any of these things is personal emolument. It is advertising, pure and simple.

Furthermore, no amount of specious argument can conceal the dishonesty of varying from a line of practice after publicly and voluntarily adopting a title descriptive of it, without frankly explaining such variation each time to each patient.

Do our homœopathic friends do this? Echo answers.

Now, recognizing these two evils, bigotry and intolerance on the one hand, and a self-justifying sectarianism on the other, how can union ever be brought about? It is evident that it cannot be accomplished by compulsion or repression or by any heroic or revolutionary measure, but rather by the slow and perhaps painful application of what I may call the principles of social physiology or hygiene.

I remember to have read somewhere as follows: "Whatsoever ye would that men should do unto you, do ye even so to them." And, again: "Thou hypocrite! first cast out the beam out of thine own eye, and then shalt thou see clearly to cast out the mote out of thy brother's eye."

In accordance with these rules, let us begin at home, and see what can be done.

REMEDIES.

In the first place, recognizing the perfect right of every doctor to believe and practise whatever commends itself to his judgment, let us expunge from our by-laws the section above referred to.

If any man believes in *similia similibus curantur*, let him believe in it: where is the harm or wrong?

If any man chooses to affiliate with others of like belief in a society for the proving of drugs or the advancement of homœopathic practice let him do so, but do not bar him from medical societies of a general scope. If he can learn more to his advantage in the former than the latter, so much the worse for the latter. Let him freely choose.

If he prefers to send his patients to a so-called homœopathic hospital, or to visit it himself for instruction, let him do it. If the practice there is more successful than elsewhere, it ought to prevail. If not, the way to convince him of the fact is not to call the other party hard names, but let him see and judge for himself.

I deprecate as much as any one the existence of these sectarian schools, societies and hospitals; but deprecation is belated and unavailing. They are here, and here to stay. We must make the best of that. The democratic principle of a fair field and no favor is as much in place here as on the ball ground. It is idle to expect these institutions, which may be called the vested rights of the sect, to renounce their sectarian names, at least at present. I am persuaded, however, that their distinctive features would gradually fade, under the conditions herein proposed, till not enough remained to justify the name, even to their promoters. The chief difference now lies in the item — an important one, to be sure, in their eyes — of drug-therapeutics. That this item must steadily diminish in importance compared with the enormous resources of non-medicinal treatment and with the vast general departments of medical study, such as biology, physiology, psychology, bacteriology, chemistry and hygiene, and their application to the prevention of disease, to education and to all the conditions of human life, seems to me self-evident.

On the other hand, I deny the right of the Massachusetts Medical Society to inquire into the intentions of its proposed members, to exact pledges of them, or to interfere in any way with matters of private judgment, or officially to stigmatize any system of practice. Every one of them ought to employ whatever means he thinks will conduce to the cure of his patient, and should have the fullest liberty to do so. A central board of examiners should be appointed by, and in behalf of the public, without whose certificate no man could practice medicine in the State. This could easily be obtained if the whole profession demanded it. Then all the licentiates of this board should be admitted to the State Society without further test, and these State licenses should have an inter-State value. It would obviate the need of the present examination at the hands of the censors. Even if the present plan is changed, as proposed by the officers of our Society, so as to have a uniform examination, it is a vexatious thing, and keeps large numbers of respectable men outside of the society. The Massachusetts Medical Society should include in its membership every reputable practitioner in the State.

The gross changes in these homœopathic institutions as well as in the Massachusetts Medical Society would doubtless be of slow development, and would be brought about by interstitial and molecular movements represented by the mutual reaction of their individual constituents. Therefore, I urge, in the second place, that sectarian distinctions be entirely ignored in the private relations of medical practitioners, with one very important proviso, namely, that no man should be deemed worthy of fellowship who personally advertises his therapeutics; and I hereby announce my individual purpose to be guided by this principle, within limits set only by circumstance and my private judgment. I am by no means alone in taking this course. It is well known that many specialists in our large cities have practically adopted it. In the New York State Society, largely through the influence of the specialists, the whole code of ethics has been abolished, and consultation is unrestricted, though a minority has an organization of its own in which the code is still accepted. Hobart Amory Hare says in a foot-note on page 19 of his "System of Practical Therapeutics," "The time has, in my opinion, come when the regular physicians should no longer, by refusing to consult with homœopathic practitioners, recognize their separate existence."

Professor Hare advises this course on the ground that there are really no longer any genuine homœopaths, and adduces reasons for the statement. While I agree that there are few if any doctors left who practise a pure and exclusive homœopathy, I prefer to take my stand on the broader ground outlined in this paper, that they have a perfect right to practise, advocate and advance it as much as they can, within the bounds of professional propriety.

In my judgment, free professional intercourse would soon lead to a correct estimate of the value of homœopathic theory and practice, both within and without the profession; and the only insuperable obstacle on the part of its votaries is their public, individual assumption of the extra-legal title.

The law of the survival of the fittest may be fully trusted to differentiate the good and the genuine from the evil and the fraudulent; but the condition of its operation is inexorable, namely, the freest possible opportunity for the two to mingle.

It is not by formal papers that conviction or agreement can be attained, but by colloquial discussion of concrete cases, and the critical watching of effects by interested and vigilant observers. Therefore, I say, throw down the party walls. Let consultation, discussion, comparison, and competition decide differences which many years of exclusion and intolerance have only aggravated and confirmed. Furthermore, let all reputable practitioners be cordially welcomed to membership in local medical clubs and societies.

If our sectarian friends fail to respond to these conciliatory and somewhat costly advances on our part, we shall at least shift from our shoulders to theirs the onus of bigotry and narrowness. Whether they would submit to any process looking to their ultimate extinction as an organized sect, I cannot say. They realize full well that their name is at present a tower of strength as far as securing patronage is concerned, and much more important to them than any peculiarity in their practice. But it is certainly true that obtrusion of the obnoxious title before the public on the private card and sign has largely passed into disuse, in obedience to that sense of professional honor to which this paper is intended as an appeal.

In hospitals let the staff be composed of such men only as are skilled in diagnosis and in surgery sufficiently to meet the emergencies which arise in infectious and traumatic cases, whatever may be their opinion concerning drug-therapeutics; and let the hospital sustain them in their official work, which should, of course, be gratuitous. In all other cases let the hospital assume no legal responsibility, and treat all practitioners alike. Let every patient, at least in the small hospitals, whether he pays or not, if he wishes, choose his medical attendant. Let no mention be made of any sectarian name. Just here our colleagues in various places have missed the vital point. They have compromised with loss of honor, because they have recognized and dignified sectarianism, both in themselves and in the homœopaths.

This plan compromises indeed, but yields no essential point. They recognize the antagonism as irreconcilable, and rest satisfied with mutual toleration. This plan ignores the distinctions and aims at organic union.

In the last International Homœopathic Congress — whose records I earnestly wish each one of you might read, if you wish to get a fair idea of modern homœopathy — the following resolutions were adopted as the sentiment of the Congress:

"*Whereas*, The proceedings, papers and reports of the Fourth Quinquennial International Homœopathic Congress conclusively show that the principles of homœopathy and its practice by educated men and women has obtained a firm footing in every civilized country on the globe; and

"*Whereas*, Notwithstanding the untold obstacles and opposition it has encountered, homœopathy has steadily advanced in professional and public estimation, until now, at the close of nearly a hundred years of incessant and desperate struggle with its foes and the repressive influence of inimical laws, its future permanency and continuous progress are, humanly speaking, assured; therefore,

"*Resolved*, That this International Convention would respectfully suggest to the non-homœopathic portion of the medical profession the question whether the time has not now arrived when the policy of professional ostracism and legislative repression may not with advantage be abandoned, as a needless discredit to our loved profession, and as a method of controversy which is daily becoming more and more unpopular and ineffective;

"*Resolved*, That we earnestly suggest that the questions that now divide the medical profession into offensive and defensive factions can never reach a solution except through those methods of observation, experiment and logic which form the only effectual resort in all other departments of human knowledge."

I, for one, heartily respond to the spirit of these resolutions. I see in them and in many other things the approach of the time when personal animosity and partisan strife shall give way to fraternal respect and co-operation, and when all distinctive titles shall disappear, while whatever of truth and value those titles represent shall be established by scientific tests and universally applied in the beneficent practice of the healing art.

In closing, let me say that my ideal is an association so comprehensive as to include all competent and reputable practitioners; so liberal as to give all opinion and practice a fair hearing and an impartial judgment, and all individuals perfect liberty of thought and action; so keenly sensitive to its honor as to resist the power of lay prejudice or favor without the restraint of iron-clad by-laws or codes of ethics; and so united and strong as to command the respect of communities and legislatures, and be able to bring to bear upon them an effective influence in favor of educational and sanitary reforms.

Original Articles.

SUBPHRENIC ABSCESS, WITH SPECIAL REFERENCE TO THOSE CASES WHICH SIMULATE PYO-PNEUMOTHORAX.[1]

BY A. LAWRENCE MASON, M.D.,
Associate Professor of Clinical Medicine in Harvard University; Visiting Physician, Boston City Hospital.

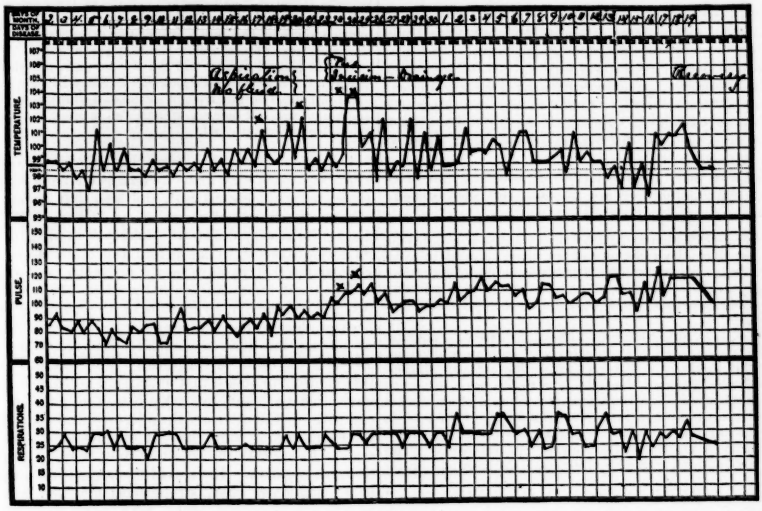
THE systematic treatises on medicine and surgery make little mention of abscesses of the sub-diaphragmatic region, from the fact that they are not dependent on diseases of any one organ, but are rare sequels of various affections, and they give rise to symptoms and physical signs which are hard to classify for purposes of diagnostic differentiation. But within recent years, from the evidence of post-mortem examinations, where such lesions had been unsuspected during life and where their symptoms had been misinterpreted, as well as from the gradual refinement in the accuracy of physical diagnosis, single cases, or small groups of cases, of this description have been oftener reported in medical journals, so that it is now easy, through analy-

[1] Read before the Association of American Physicians, Washington, D. C., May, 1893.

sis of these observations, to recognize the varied etiology of these grave conditions, and, from a knowledge of their causation, to see more clearly their clinical import and therapeutic indications.

While collections of pus within the thorax may usually be detected with a fair degree of certainty, it is not so when they are seated high up under the arch of the diaphragm, circumscribed by peritoneal adhesions and with difficulty reached by the exploring needle. So that the earlier literature of this subject is largely a record of mistaken diagnoses, the true condition, in many cases, having been discovered only after death or during operation for a supposed empyema or hepatic abscess. In this relation, Bristowe, after reporting two obscure cases, says: "It seems clear that the recognition of abscesses in the upper part of the abdomen is often extremely difficult if not impossible, and that to diagnosticate them correctly demands the most careful and continued observation, and to treat them effectively calls for both skill and courage."

The gradual accumulation of observations, however, especially since the valuable article by Leyden, in 1880, on the condition which he termed "Pyo-pneumothorax Subphrenicus," [2] shows that latterly more cases have been recognized and attributed to their proper sources, and early treatment by incision and drainage has oftener led to recovery. But it is also apparent that the primary, causative lesions are of so grave a character, and the complications so serious, that cure can result in no large proportion of cases.



CASE I.

CLASSIFICATION.

In a general way such abscesses may be classified according to their situation. They may be under the right or the left wing of the diaphragm, the suspensory ligament of the liver being the dividing limit. In the former case they are encapsulated between the diaphragm and the right lobe of the liver, and are usually due to inflammation extending from the region of the liver, kidney, duodenum, or cæcal appendix. On the left they find their seat in the tissues adjacent to the stomach, the pancreas, the left lobe of the liver, or the spleen, their lower limit being formed by firm adhesions between these organs, the transverse colon, and the parietes. This is the more common position owing to the fact that the most frequent exciting cause is perforating gastric ulcer. Subphrenic abscesses, so called, are usually within the peritoneal cavity, a circumscribed peritonitis, but they may be retro-peritoneal, extending in the connective tissue behind the stomach, duodenum, intestine, or kidney. They may contain air through perforative communication with the gastro-enteric tract, or they may not. Finally, they may invade the abdominal or the thoracic cavity, more frequently the latter, thereby giving rise to the most complicated physical signs and conditions.

THE ETIOLOGY

of these abscesses and the incidents attending their course may, perhaps, be best shown by the report of seven cases, which have come under my observation at the Boston City Hospital during the past five years, with such amplifications as the literature of the subject affords. I will then consider the difficulties attending their diagnosis and treatment.

CASE I (MASON). *Abscess between liver and diaphragm; drainage; recovery.* — An Italian, aged thirty-five years, entered my service at the Boston City Hospital, with diarrhœa and iliac tenderness. He had little fever and no history of prolonged illness. The symptoms abated in a week, but ten days later abdominal pains, headache, and diarrhœa recurred. The spleen was not enlarged. Distinct diazo reaction in

[2] Zeitschrift für klinische Medicin, 1880, S. 320.

urine. Typhoid fever, dysentery, and malaria were considered and excluded. Pain at epigastrium and over liver increased, with distended stomach and vomiting, and soon the hepatic dulness was found to extend an inch and a half below the ribs in the mammary line. No jaundice. Respiration deficient at the right base. An examination of the blood showed 4,690,000 red corpuscles to 20,000 white; 1 : 235; a leucocytosis. Abscess in the region of the liver was suspected, but the exploring trocar at the angle of the scapula and in the side found no pus. A week later twenty-four ounces of inodorous pus were evacuated through the sixth space, anterior axillary line. Dr. F. B. Mallory, assistant pathologist to the hospital, examined the pus but found only broken-down material; pus corpuscles and large fatty cells; no organisms; nothing diagnostic. Dr. Edward H. Bradford, my surgical colleague, evacuated and drained the abscess through the seventh space at the anterior axillary line. Half a pint of pus escaped. The incision went through the diaphragm which was adherent to the costal parietes. The finger could feel the upper surface of the liver, but no cavity in its substance. Irrigation with boracic acid solution; baked-gauze dressing. There was a yellow or pinkish discharge containing débris, which might have been liver substance, but this was not determined. Recovery in one month.

Similar cases are the following, which I find after brief search, and they are probably not very uncommon.

Case. — Stockton and Park [3] report a case of subphrenic abscess above the right side of the liver, thought to have been due to hepatic abscess, which was cured by operation. Two years later the patient had pleuritis, septic pneumonitis, and empyema, which were also cured by incision and drainage.

Case. — Ford [4] reports an interesting case of "Hepatic Abscess with Signs of Pneumothorax," obscure respiration, metallic tinkling, and succussion. The autopsy showed complete adhesion of the right lung to the parietes and to the diaphragm. The lower lobe was the seat of an abscess which communicated, through the diaphragm, with a large abscess of the liver, thus forming an air-containing cavity which had given rise to the signs of pneumothorax. The abscess had been treated by intercostal incision and drainage.

Case. — Fyffe, [5] in an article on "Abscess of the Liver," relates the following deceptive history: A patient from India who had had dysentery presented "liver symptoms," with bulging and fluctuation of the right side. Incision between eighth and ninth spaces in front and drainage of a supposed hepatic abscess. At the post-mortem, some time later, the liver was found to be perfectly healthy, but an abscess above the liver had made several spontaneous openings.

From this and other cases the author concluded that peri-hepatic abscess in this locality may find its way out by several openings, whereas, if abscess of the liver points externally, it is generally in one direction by a single orifice, and that most frequently at the margin of the right lower ribs.

Case. — Cochrane [6] records a case of subphrenic abscess between the right lobe of the liver and the diaphragm, in which the symptoms and history had indicated hepatic abscess. Rupture into the right lung occurred and pus found exit through the bronchi. At the autopsy the liver was normal, but on its upper surface was an abscess bounded above by the diaphragm and below by the hepatic capsule, with an opening an inch in diameter into the base of the right lung.

Case. — Suppurating echinococcus cyst was the cause of subphrenic abscess in a case reported by Herrlich,[7] who resected the seventh rib in the right side, incised the diaphragm, and cured the patient.

Case. — Shepherd [8] relates the case of a man, aged sixty, at the Montreal General Hospital, who was thought to have liver abscess or echinococcus cyst. He had a history of pain at the epigastrium and right hypochondrium for more than a year, with slight jaundice. A fluctuating tumor pointed at the right hypochondrium and encroached upon the thorax, causing bulging. Eighty ounces of pus were evacuated. The diaphragm was felt through the opening pushed up to the third rib in front. The liver was displaced downward and backward, but was not felt. No signs of echinococci or liver substance. Rapid recovery. The abscess was peri-hepatic.

Case. — A. T. Cabot [9] reports from the Massachusetts General Hospital, "two cases of abscess of the liver, implicating the pleural cavity," which he cured. In the first, an incision through the tenth space, posterior axillary line, showed a large abscess below the diaphragm which had invaded the pleural cavity. In the second case, a higher incision in the seventh space anterior axillary line gave exit to a few ounces of pus from a sacculated empyema. The diaphragm was felt bulging up and was incised, and a large abcess below was drained.

It is evident from these cases that subphrenic abscess of the right side may arise by extension from hepatic abscess or echinococcus cyst, and also that it may not involve the liver substance at all. The distinction during life is very difficult. Dabney,[10] in his paper on "Hepatic Abscess," read before this Association last year, states that rupture into a bronchus is the most common and least dangerous direction. He also says that the presence of liver cells in the contents of an hepatic abscess does not seem to be of very common occurrence, but that occasionally they are found and are of great value in diagnosis. Von Jaksch [11] says that it rarely happens that much aid accrues to diagnosis from the chemical examination of purulent discharges. In Cabot's cases the microscopical and chemical examinations were thought diagnostic of liver abscess. In my case the result of microscopic examination was negative. In cases of "peri-gastric" abscess, to be mentioned later, streptococci and the bacillus pyocyaneus have been found, with many other organisms and sometimes particles of food. From this source, also, round worms have escaped into the pleural cavity.

SUBPHRENIC ABSCESS IN RELATION TO PERFORATING ULCERS OF THE STOMACH AND DUODENUM.

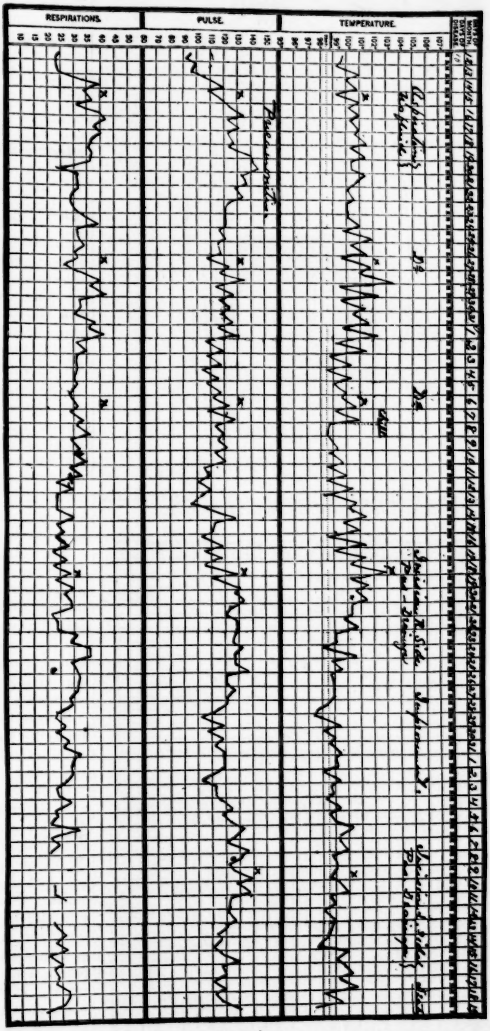
The chief interest of this subject, however, centres upon its relation to gastric and duodenal ulcers, and the occurrence of air-containing abscesses which present signs resembling those of pyo-pneumothorax. Four such cases have come under my observation. Two of these were reported to the Suffolk District Medical Society [12] four years ago, and will be briefly recapitulated.

CASE II (Mason). *Subphrenic abscess from gastric ulcer, with perforation; drainage; cicatrization of*

[3] International Medical Magazine, May, 1892.
[4] St. Louis Clinical Record, July, 1876.
[5] Bristol Medico-Chirurgical Journal, vol. ii, page 250, 1884.
[6] Canadian Practitioner, April, 1884.
[7] Deutsche med. Wochenschrift, 1886, S. 139.
[8] A Case of Sub-diaphragmatic Abscess. Phila. Med. News, December 17, 1887.
[9] Boston Medical and Surgical Journal, January 9, 1890.
[10] Transactions of the Association of American Physicians, vol. vii., 1892.
[11] Clinical Diagnosis, p. 208.
[12] See Boston Medical and Surgical Journal, October 31, 1889.

ulcer; death. — A young woman, aged twenty-two years, who had been anæmic for a year, entered the hospital December 12, 1888, with dyspepsia and gastric pain. The pain was referred to the lower margin of the ribs, and was aggravated by forced inspiration. There was fever, but vomiting, chills, and sweating were absent. She had retention of urine. In the left side and back respiration was absent below the seventh rib; tubular above, with high-pitched, crackling râles. There was no cough. Aspiration in the seventh space found no fluid. Vomiting soon became a prominent symptom, the vomitus containing pus and blood-stained shreds, with a very foul odor, as if an abscess were discharging through the stomach. These evacuations were followed by relief of pain and diminution of fever. Further explorations failed to reach the pus. Shortly, the pain was transferred to the right side in the region of the lower ribs, with tenderness over the liver, which was neither enlarged nor depressed. There was severe pain in the right shoulder. I evacuated several ounces of pus, having the same odor as the vomitus, by incision through the tenth right space, anterior axillary line, and inserted a drainage-tube, which followed the surface of the liver four inches upward and backward. The cavity was washed out with creoline solution, and closed up in ten days. In the meantime, the pain, fever, and vomiting had abated, but the consolidation in the left back persisted. In a few days gastric pain and vomiting returned, but the vomitus had lost its offensive odor. Pus was now found at the seventh left space, axillary line, and the cavity was drained, but the patient soon died from exhaustion. Cough and expectoration had been absent throughout.

Autopsy: Both pleuræ adherent to chest walls. No fluid in pleural cavities. Lower lobe of left lung solidified and firmly adherent to diaphragm. On section, it presented a granular surface, and was very dense (interstitial pneumonitis). In a space between the liver, spleen, stomach, diaphragm, and chest-wall was an abscess cavity, of three or four ounces capacity, which communicated with the incision in the left side. There was no perforation of the stomach, but in the posterior wall was a recently healed ulcer. Firm adhesions bound the above-mentioned organs together and to the parietes. The diaphragm was not perforated. The abscess in the right side had closed and the sinus could not be found. Liver, kidneys, and heart pale and opaque.

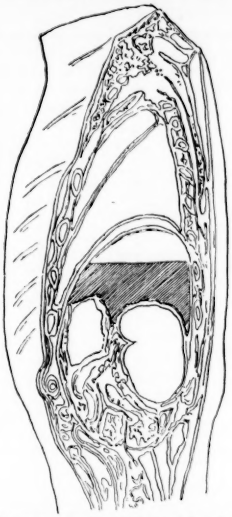


CASE II.

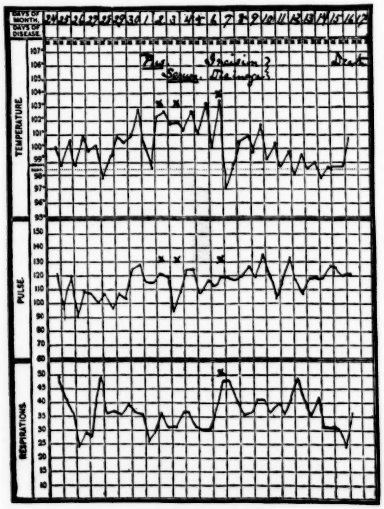
CASE III (Forster). *Subphrenic abscess from perforating ulcer of the stomach; drainage; death.* — A female, aged thirty-five years, entered the hospital September 24, 1890, in the service of Dr. E. J. Forster, who asked me to see her. She had had dyspnœa and palpitation for a year; abdominal pain and vomiting for a week only. No hæmatemesis. Marked tenderness in the epigastrium, left hypochondrium, and lower part of left chest. Liver one inch lower than normal. In the splenic region flatness extended from the seventh rib to a point midway between the border of the ribs and the umbilicus. Here a tumor was felt which was

stationary during deep respiration. Non-tympanitic fulness at epigastrium.

Lungs: Below angle of left scapula, flatness; diminished respiration, voice sounds and fremitus. Succussion splash. No cough. Aspiration at seventh left space, posterior axillary line, found thin, foul pus. The following day, at nearly the same level, twenty-four ounces of clear serum were withdrawn. This seemed to show a serous pleurisy and an abscess cavity below.



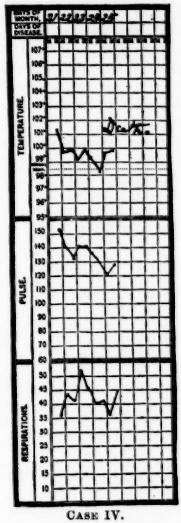
CASE III. — Vertical section through stomach and spleen, to show relations of air-containing abscess, as in Case III.



CASE III.

A diagnosis of subphrenic abscess from perforating gastric ulcer was made, and operation was advised. This was undertaken by Dr. H. L. Burrell, Dr. D. W. Cheever in consultation, although in the meantime the patient had begun to expectorate a dark, foul, purulent fluid, and was so weak that ether was not administered. About two quarts of sanious pus escaped through a free incision in the ninth space, posterior axillary line. Irrigation with warm boracic acid solution. After four days the fluid came away clear, the cavity had contracted, and the temperature was normal, but there was no gain in the patient's strength, and she died ten days after the operation.

Autopsy: Below the ensiform cartilage a cavity was opened, of large size and lined with pyogenic membrane, bounded by the liver, diaphragm, stomach and adhesions. The left lung was adherent to the chest-wall behind and to the diaphragm, leaving a pus cavity in the lowest part of the pleural sac from which was an opening through the diaphragm into the abscess below. Lower part of lung gangrenous; liver, stomach and spleen firmly adherent and removed together. Upper third of spleen softened and covered with pyogenic membrane.



CASE IV.

The stomach showed two ulcers near the pylorus, in the lesser curvature, one through the mucous membrane only; the other, one centimetre in diameter, with smooth, rounded edges, communicating directly with the abscess cavity.

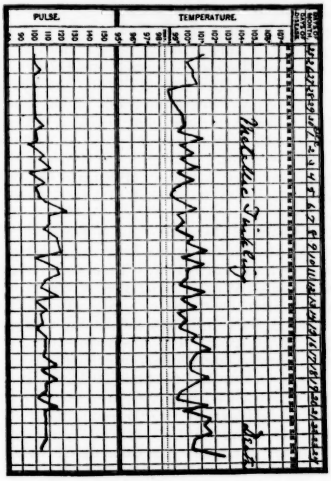
Diagnosis: Ulcer of stomach, with perforation and abscess formation above and below diaphragm.

CASE IV (Sumner). *Perforating gastric ulcer, with circumscribed peritonitis, which later became general; death.* — A Swedish young woman, aged nineteen years, entered the hospital in the service of Dr. A. M. Sumner, February 21, 1893. For a week she had had gastric pain and nausea. No vomiting nor chills. The day before admission she fell to the floor, writhing in great agony. The pain was referred to the chest, later to the abdomen. She was in collapse on admission, and failed steadily. The abdomen was tense, tender, and tympanitic. She vomited once or twice. It was noted that there was dulness at the bases of both lungs, and a friction rub in the right axillary region. On the left, tympany below the fourth rib in front and absence of respiratory sound. She died in a few days. A general peritonitis was recognized, but the patient's condition was such as to forbid extended examination.

Autopsy: An abstract of part of the autopsy, which was made by Dr. Councilman, is as follows:

The peritoneal cavity contained 1200 cubic centimetres of thin, fetid pus. There was a circumscribed cavity containing pus, shut off from the general cavity, and bounded by the suspensory ligament of the liver, the diaphragm, the upper surface of the left side of the liver, the stomach, and the parietes.

Stomach: The stomach was adherent to the liver. In its anterior wall, just beneath the attachment of the stomach to the liver, and about the middle of the stomach, was a round perforation with smooth edges, one centimetre in diameter. On opening the stomach, there was a round ulcer of the mucous membrane, two and a half centimetres in diameter, corresponding to the external perforation. It was directly in the middle of the stomach. On the posterior wall, at a point exactly corresponding to the ulcer in the anterior wall, was a small ulcer through the mucous membrane only.



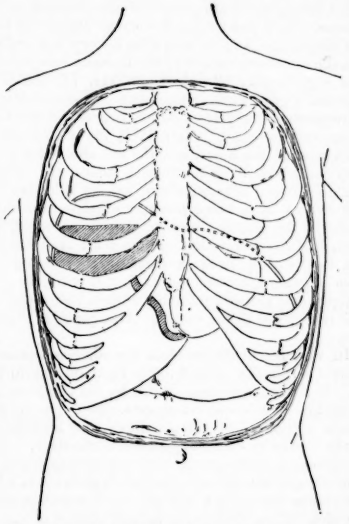
Case V.

Lungs: Congested at bases; no adhesions. Apices indurated (fibrous), with numerous small caseous and calcareous masses and fibrous nodules.

Pleuræ: Diaphragmatic pleura on both sides covered with fibrino-purulent exudation, which extended somewhat over the lateral surface of the left lung; 200 cubic centimetres of turbid serum in each pleural cavity.

Diagnosis: Perforating gastric ulcer causing circumscribed peritonitis with subsequent perforation of general abdominal cavity. Acute pleurisy with exudation due to extension from peritoneum. Old healed tuberculosis at apices.

Case V (Mason). *Perforating duodenal ulcer causing abscess, with signs resembling those of pneumothorax; death; autopsy.* Male, aged fifty-six years, entered the hospital November 25, 1888. After a severe gastric attack fifteen months before, he had recovered so far that he could work, but had never felt well since. A month before admission he was again seized with violent pain in the epigastrium and right side, so severe that ether was required. He had been in constant pain since, with several exacerbations. No vomiting and no blood from bowels at any time. At the epigastrium was a tense bulging, tender and resonant. Over this area metallic tinkling was heard when the patient coughed. The liver was two inches lower than normal. Over the front of the right chest, as low as the seventh rib in the mammary line, the percussion tone was hyper-resonant, the respiration was faint, vocal fremitus diminished, and metallic tinkling was heard. At times the coin sound was elicited, but these phenomena were inconstant, were not observed in the back, and there was no succussion splash. In the lower half of the right back were signs of pleuritic effusion. The heart was displaced an inch



Case V. — Air-containing abscess above liver; sinus communicating with duodenal ulcer; as in Case V.

and a half to the left. The removal of twenty-four ounces of clear serum by tapping at the fifth right space, posterior axillary line, gave relief to the pain and dyspnœa, and the epigastric bulging and tenderness disappeared temporarily, as well as the metallic tinkling. I had expected to find pus, thinking that a circumscribed pyo-pneumothorax was present, and I was at a loss to explain the signs, as this was the first of these cases which had come under my observation. Later tapping withdrew more serum, but no pus, the presence of which had been expected by Dr. Samuel Delano, who attended the case in its early stages, when the symptoms pointed rather to some abdominal affection. The patient failed gradually, and died in one month. There were no chills at any time. Cough and vomiting were slight. No pus was found in the stools.

Autopsy: Right lung adherent to diaphragm. Serous effusion in posterior right pleural cavity. Diaphragm not perforated. No pneumothorax. Lungs healthy. Between the right lobe of the liver at its

highest part and the diaphragm was a large, circumscribed abscess, partly filled with pus, which communicated by a long sinus with an open duodenal ulcer one and a half centimetres from the pylorus. This ulcer was circular, one and a half centimetres in diameter, with smooth edges, and from it extended a fistulous tract running on the under surface of the liver, between the gall-bladder and the longitudinal fissure, to the anterior border of the liver, then up the superior surface until it entered the abscess cavity. The gall-bladder, duodenum and liver were adherent, thus shutting off the abscess from the peritoneal cavity.

REMARKS.

These four cases present in typical form the incidents which attend the course of subphrenic abscess when due to perforating ulcer of the stomach or duodenum. Two had a clear history of symptoms below the diaphragm and in two this history was wanting, but the secondary nature of the thoracic complications was suggested in all. In Cases III, IV and V the physical signs which accompany pyo-pneumothorax were present in a greater or less degree. Case V was to me very obscure. The fluid in the pleura, the displacement of the heart, and the metallic sounds were very misleading. The abscess under the arch of the diaphragm, covered above by the adherent lung and behind by a large pleuritic effusion, was out of reach by the ordinary means. It was observed, however, that the respiration and the vocal fremitus were not totally suppressed in front as they would have been in general pneumothorax, but it was only at the autopsy that the air-containing abscess above the liver was recognized as the cause of these peculiar phenomena.

In very few instances does the abscess caused by gastric perforation extend to the right side as in Case II. It is almost always limited by the falciform ligament, but occasionally an abscess, due to gastric ulcer which perforates near the pylorus, may seek its way to the convexity of the right lobe of the liver. I find but one case with perforation of the cardiac end of the stomach and one through the posterior wall in which this course was taken; and but one in which perforating ulcer of the duodenum caused abscess of the *left* side.[13] Eisenlohr[14] mentions the case of a girl in whom, at autopsy, was found a perforating gastric ulcer of the posterior wall, communicating with an abscess above the right lobe of the liver, which during life had given rise to tympany and metallic tinkling below the right scapula.

Therefore, an air-containing abscess under the left ala of the diaphragm almost invariably indicates perforating ulcer of the stomach, usually of the middle portion, in the lesser curvature; and most frequently in the posterior wall. Whereas a similar abscess between the right lobe of the liver and the diaphragm points to perforation of the duodenum or vermiform appendix. I find but two instances in which abscess under the left wing of the diaphragm was traced to an appendicitis.[14]

Empyema and true pneumothorax are not infrequent results of perforation of the diaphragm from below, but the adhesion of the lung to the diaphragm and costal pleura tends to check this complication. The abscess may also be evacuated through the bowels or the bronchi, as in Case III. Serous or sero-purulent pleural effusion, from contiguity with the subphrenic abscess, is more common.

Fenwick,[15] in his interesting clinical lectures at the London Hospital on "Some Obscure Diseases of the Abdomen," mentions eight cases of peri-gastric abscess and five cases of "peri-duodenal" abscess as having occurred at that hospital during the past forty years. He also collected reports of fifty-one peri-gastric abscesses from various sources. Forty-one were caused by gastric ulcer, six by cancer, and four by lesions not connected with the stomach. While gastric ulcer is more common at the pyloric end, the greater fixity of the cardiac extremity is thought by this writer to favor the adhesions which admit of the formation of abscesses, as it is found that these usually communicate with ulcers in the lesser curvature nearer the cardiac orifice. In twelve cases the thorax was invaded, but in others there was empyema without perforation of the diaphragm. In twelve cases the abscess found exit through the parietes, and in three the pericardium was perforated, causing death on the third or fourth day. Pneumo-pericardium may supervene. Two-thirds of the patients were female, and the symptoms were often of many years' duration. Fever and pain were prominent symptoms, but repeated chills were not noticeable. Both true and false pneumothrorax were often recorded. Pus from the abscesses in some instances contained food. In five cases the perforation of the stomach was found to have healed, as in Case II.

At that hospital there were also five cases of "peri-duodenal" abscess during the same long period. Of twenty-four cases which Fenwick had collected, eighteen were caused by perforating ulcer of the duodenum, three by gastric ulcer, five by suppuration from gall-stones which burst into the duodenum, and one by hydatids of the liver. The ulcers were usually near the pylorus; they were seldom in an acute stage. The edges were smooth and thickened. In two cases the pus had made a cavity in the pancreas, and in five suppuration had extended to the connective tissue behind the duodenum. "Peri-duodenal" abscesses were more common in males. Nine out of eleven cases in which the sex was mentioned were in men. In one case the symptoms had existed for eight years, in another seven, in a third three, the ulcers having become quiescent, thus forming adhesions. Pain, radiating from the epigastrium, was the most notable previous symptom, but this was not always urgent. In most cases there had been vomiting of blood or bloody discharge from the bowels. Emaciation and exhaustion were often extreme. Tumor at the epigastrium was the most frequent sign on inspection, usually elastic, often tympanitic, and sometimes giving a metallic tinkling. The line of tympany in certain cases varied with the position.

I have been able to find no instance of recovery from this condition and know of no case in which a perforation of the duodenum has been found healed after death.

(To be continued.)

THE POSTMASTER-GENERAL has announced that disease germs, no matter how securely sealed, are to be classed with unmailable articles.

---

[13] Mittheilung. med. Klinik zu Königsberg, 1888, s. 211.

[14] Berliner klin. Wochenschrift, 1877, s. 539; and November, 1892.

[15] Clinical Lectures on Some Obscure Diseases of the Abdomen, by Samuel Fenwick, M.D., London, 1889.

QUARANTINE *vs.* SANITATION.

BY W. T. SEDGWICK, PH.D.,
Massachusetts Institute of Technology, Boston.

A MEMORANDUM of unusual interest has lately appeared defining the attitude of Great Britain towards quarantine. England has always held a leading position in sanitary affairs, so that her steady refusal to adopt wholesale quarantine at her seaports has naturally excited frequent comment and inquiry. It has seemed very strange to many that the nation having the largest commerce, and therefore most exposed to cholera and other exotic diseases, should be so indifferent, and even opposed, to quarantine. Sanitary officials of the political kind, such as too often exist in this country, have naturally supposed that England's opposition to a mediæval system was based upon merely mercenary motives — these always offering to minds of a certain order an ample explanation of unusual action. Sanitarians, however, have long known that local isolation was the key-note of the English system, together with local sanitation, which should make widespread outbreaks impossible even if exotic diseases like cholera should be imported. To apply a saying of Pettenkofer, the English have regarded unsanitary conditions as a kind of powder for which cholera is a spark: and they have held that it is wiser to keep no powder than to spend their energies in frantic attempts to beat off a spark, which, if it gets in, would be sure to blow them to pieces. Quarantine, and that, too, of a very rigid kind, is employed in England; but it is quarantine of the individual rather than the mass, a system now generally described by the term "isolation of the patient."

The memorandum referred to was compiled at the request of the Foreign Office with a view to its circulation amongst British representatives abroad, and to its serving as an answer to a number of requests made by foreign countries as to the action taken in England for the prevention of the spread of infection. It was prepared by Dr. Thorne Thorne, medical officer to the Local Government Board, and himself a distinguished sanitary authority, in answer to a request of the Foreign Office to be supplied with a statement "setting forth the general nature of the standing precautionary measures adopted in the United Kingdom to prevent the introduction of contagious or infectious diseases." In reply, Dr. Thorne states that even in the case of cholera, the Public Health Department of Great Britain recognizes no system of quarantine. He adds:[1]

> For nearly fifty years past it has been held that reliance on a quarantine system would be, to a large extent, impracticable, and that any attempt to carry it out would be injurious, both by reason of engendering a false sense of security and by affording a pretext to sanitary authorities for avoiding expenditure of those local funds on which, in this country, we depend alike for effecting large schemes of sanitary improvement and for carrying out our current sanitary administration. Hence, our principal trust has been in securing amendment in every way in the sanitary circumstances under which the population are living; and defence against cholera in this sense has been supplemented by the adoption of a series of cholera regulations which apply to our ports and coast line and which are aimed at preventing the introduction of cholera by means of shipping. . . .
>
> If, as the result of examination, the medical officer of health certifies a ship to be infected with cholera, the ship must be moored at a specified place, and every person on board is required to submit to examination. Every person who, as the result of that examination, is not certified to be suffering either from cholera or from any illness which the medical officer of health suspects may prove to be cholera, is permitted to land immediately on satisfying the medical officer of health as to his name, place of destination, and address at such place. This information is communicated to the sanitary authority at the place of each such person's intended arrival, and it is for that other authority to take measures (which commonly include a visit for some five consecutive days, on the newly-arrived person) such as may be expected to prevent extension of cholera should that disease appear in any one after arrival in their district. Any person on the ship who is certified to be infected with cholera is required to be removed to a hospital provided by the sanitary authority. Should the condition of the patient not permit of this, the ship is detained under the control of the medical officer of health. And any other person certified to be suffering from an illness which it is suspected may prove to be cholera, can similarly be detained for the purposes of diagnosis for a period not exceeding two days. The ship is required to be disinfected and other precautionary measures have to be adopted as regards drinking-water, bilge-water, infected articles, dead bodies, etc., after which she is at once released.
>
> The only instance in which any further measure of restriction can be applied is as to persons on board a ship which, though not infected with cholera, either carries passengers who are in a filthy or otherwise unwholesome condition or has come from a place infected with cholera. If, in any such case, the medical officer of health deems it necessary to intervene, with a view to checking the introduction or spread of cholera, he is required to give a certificate to that effect. When such certificate has been given no person is allowed to leave the ship unless he satisfy the medical officer of health as to his name, place of destination and address at such place, such information to be utilized in the same way as in the case of a ship certified to be infected with cholera. But beyond this there is no right of interference either with the vessel or with those on board.
>
> The English cholera regulations do not profess to be so framed as to prevent all chance of the importation of cholera into the country. They aim at detection and arrest of all actual or suspected cholera at our ports and at giving the earliest possible warning to inland authorities as regards particular persons about to arrive in their respective districts. If, in spite of these measures, the disease should be imported, every sanitary authority has the responsibility for the maintenance of conditions which should enable them to deal with imported cholera in such a way as to prevent its extension.

[1] Lancet, July 1st and 22d, 1893.

In a lecture recently delivered at St. Bartholomew's Hospital, Dr. Thorne spoke more informally about the English system substantially as follows:

Up to a recent date the Continental Powers had relied essentially upon a rigid quarantine system. Quarantine, as applied to the Thames, for example, would mean the detention of all vessels coming from infected ports for a period varying from ten to five days according as the conclusions of the Constantinople Conference or of the Rome Conference were accepted. During that period healthy and sick alike would be prohibited from having any communication with the shore. If, during the quarantine detention a case of cholera occurred on board, the whole of the crew and passengers, together with the ship, would have to go through a second period of detention and so long as any fresh attacks occurred. In the meantime shipping would be accumulating and the result for us would become a mere absurdity. And not only so, but half-a-crown would any night secure a boatman's service for landing on the river banks. In short, the system would only have to be applied to ensure its immediate breakdown.

England decided against quarantine for another reason. If the people in this country were told that a line had been drawn round England to keep out cholera, a death blow to our sanitary administration would at once be dealt. Since they have been told that cholera cannot, with certainty, be kept out of the country, and that they themselves must be prepared to deal with it if it is imported by maintaining their districts in such a sanitary condition that the disease shall not spread if it should make its way into them, eight millions sterling have been spent in sanitary works every year and hundreds of thousands of lives have been saved from typhoid fever and other epidemic diseases. The general mortality has also largely decreased and a Frenchman — an old fellow-student of his — who is now at the head of the public health service in France, has calculated that, according to the estimate of human life by Dr. Farr and other English authorities, taking all the millions we have spent and all the lives that have been saved (I forget the exact sum), we have just got our money back. It might almost seem as if we had done it on purpose. No greater calamity could happen to this country than to apply the system of quarantine. At Dover alone in one week in August, 5,800 people arrived at the port. What would Dover have done had she been obliged to quarantine them? They could not have them in the harbor at night, for they could easily have escaped; they could not have them on land for a similar reason. If they had put them to sea they would probably have been sunk by the first tempestuous wind. The attempt would be perfectly ridiculous and could be attended by nothing but disaster.

Quarantine was also a cruel process. That was best exemplified by reference to land quarantine, as, for example, during the Egyptian outbreak of 1883, when villages and communities were surrounded by troops with loaded rifles and bayonets. Any person taking food within the prohibited line would be subject to the same quarantine as the villagers, and it is believed that land quarantine has often destroyed more lives by starvation and misery than would have been sacrificed by cholera. But land quarantine, too, is essentially inefficacious, the line being broken without difficulty, whether in Egypt or elsewhere, by all who can afford to pay their tribute of baksheesh.

The following is especially interesting and suggestive:

For England the abandonment of quarantine has been an almost unmixed good. The knowledge that no pretence would be made to keep out all chance of cholera in this country, has done more perhaps than anything else to induce our sanitary authorities to spend their money on great works of sanitation and on such improved sanitary administration as is likely to prevent the spread of any imported disease of the type of cholera. Millions have been spent to this end; but, on the other hand, hundreds of thousands of lives have been saved. Even if cholera should once more succeed in passing the barrier of our ports and diffusing itself inland and cause a heavy mortality, we should still be enormously the gainers in point of human life by the system which we have so deliberately adopted; but there is no doubt that our system is rather calculated to prevent than to lead to such a contingency.

No one can successfully deny that these principles embody sound sense as well as a rational application of the best results of modern science to sanitation. In our own country at present there is still altogether too much of leaning upon federal quarantine. This has its place; but our great cities ought to understand that their first and principal business is to set their own houses in order; to see that their own sanitary affairs are in intelligent hands, and, especially, that their public food supplies, such as milk, ice and water are free from all taint of sewage. Efficient local sanitation and isolation — not so much wholesale, by quarantine, but for each particular case — these are the plain teachings of modern science as well as of common-sense.

TENOTOMY.[1]

BY A. M. PHELPS, M.D., NEW YORK,
Professor of Orthopædic Surgery in the University of New York, the New York Post-Graduate School and Hospital, and the University of Vermont, etc.

THE question of tenotomy has been under discussion for more than half a century, and, as yet, seems to be unsettled in the minds of the profession. We have, on one hand, the enthusiastic tenotomist who believes in performing tenotomy under almost all circumstances without rhyme or reason; and on the other, the gentlemen who believe that tenotomy should never be performed, but by mechanical means all the deformities can be overcome. It is needless to say that there is a middle course to pursue which I believe to be correct; and it is more particularly to this that I desire to call your attention this evening.

Muscles are composed of fibrous tissue, between the layers of which are deposited the muscle cells. These muscles end in tendons, which are inserted into the various levers of the body.

When one of these muscles becomes contracted from various causes, a deformity always ensues. This deformity, when of the extremities, is of a very serious character, and the question arises when and how shall we lengthen these tendons? It is true that muscles in which change has not already taken place in their fibrous element, can be lengthened by stretching, whereas muscles in which the fibrous element has become permanently shortened, it is almost an impossibility without a cutting operation to lengthen. Barwell has given to the first class the name of contraction, and to the second, contracture.

To determine just when a muscle is contractured and not contracted is often very difficult. Sayre years ago laid down what he calls a law, and I quote from his paper of October, 1886, printed in the *Virginia Medical Monthly*, the following: "When a contracted tissue is put upon the stretch, and the parts are brought as nearly as possible into their normal position, either by means of the hands or mechanical aids, and then additional pressure is made upon the tissue that is stretched either by making pressure upon the stretched tissue with the fingers or by pinching it between the thumb and fingers, and no pain or voluntary spasm is caused, the tissue thus stretched and handled is simply contracted, and can be elongated by persistent traction and treatment. If, on the contrary, this additional or 'point pressure,' upon an already stretched tissue causes pain and an involuntary contraction or spasm of the muscles of the entire body, the tissue thus stretched has become contractured or changed in its structure, and must be severed before the parts can be brought into their normal relations."

It is undoubtedly true, that putting a contractured muscle upon the stretch and making pressure upon it will produce pain and often spasm; but the same is true of muscles which are not contractured. I have in a long series of cases, particularly in contractions of the adductor muscles in hip-joint disease, demonstrated that spasm and pain under point pressure are present in those muscles which rapidly give way under extension. We are all familiar with the spasm which is elicited in certain forms of spinal disease, producing ankle clonus. If, in this condition, the muscle is put upon the stretch and point pressure made, pain and spasm is elicited, notwithstanding, by a little prolonged force, that foot may be placed in position of extreme flexion upon the leg.

Then we must say that it cannot be a law; that it is good so far as it goes to aid in diagnosis; but I know of no positive way of determining when a muscle is contracted or contractured. I usually place these patients under ether, and with great force, with my hands or with a machine, attempt to place the limb in the normal position. If, when it arrives at a certain point, I find resistance, requiring great force to overcome it, tenotomy is invariably resorted to.

All cases of contraction of fibrous tissue producing deformity I believe are better divided than stretched. It is a well-known fact that when fibrous tissue, whether of the muscle fascia, or ligament, is submitted to prolonged traction, pain, spasm and often convulsions will result, for example, Dupuytren's contraction of the fingers. Then, inasmuch as we have no law upon which we can depend, and the physician must use his own judgment in a given case, I have long been accustomed from experience and from clinical observation to follow out the following rules:

In small children with contractions, I invariably begin a system of manual treatment supplemented by braces usually made of plaster-of-Paris to hold that which I have gained by manipulation. These manipulations are conducted day after day until the child

[1] Read before the Orthopædic Section of the New York Academy of Medicine, December 16, 1892.

arrives at a certain age — as for instance in club-foot, usually two or three months — when I proceed to divide whatever parts are contracted and overcome the deformity. In cases of paralysis resulting in contractions, I usually operate. I frequently operate upon these cases, even where the deformity can be overcome, because the lengthening of the muscle materially assists the brace in holding the member in the straight position and aids the antagonizing to contract.

It is argued by the gentlemen who see nothing beyond steel bars, buckles, straps, ratchets and screws, that to cut a tendon necessarily impairs the usefulness of the muscle, and that non-union of tendons frequently occur; that they overcome these contractions by machines.

To the first I will answer that the cutting of a tendon does not impair the usefulness of the muscle to the same extent that stretching with a traction machine does; the sheath of the muscle making lateral pressure. Cases of club-foot treated by prolonged traction show precisely the same or even more atrophy of the calf, and no better feet than those operated upon.

Some of the gentlemen who were present at the tenth International Congress in Berlin, will remember the excellent cases of cured club-foot by forcible redressment presented by Professor Wolff. In all of those cases, there was the same marked atrophy of the calf that we observe in cases upon which operations have been performed. There is a reason for this. The constant pulling upon a muscle in which the fibrous element has become shortened, produces atrophy of that muscle by making pressure upon the muscle cells by the approximation of the fibrous element of that muscle. When a tendon is cut, the muscle contracts. All of the muscular element is left, the tendon is lengthened, and when the muscle is again restored to its normal tone it is as strong as before cutting. The muscle is stronger than those stretched. As regards the non-union of tendons, I will say that, in my own practice, extending over a great many hundred cases, I have never seen a case of non-union of tendons, and non-union of tendon, in my opinion, will never take place, if the operator exercises proper care and performs his operation according to scientific methods. That non-union of tendon does take place when performed according to the idea of some authors there is no doubt. The adhesions to the sheath and the pulling out of the tendon into a long ribbon-shaped piece, as recorded by Adams, when performed as many English surgeons perform it, is a fact, and this is one of the best reasons why the methods as adopted by them, both of operating and carrying out of the after-treatment, should be abandoned; because when tenotomy and the after-treatment are carried out, as I shall soon describe it, these calamities will never be seen.

This brings us to a consideration of how long is the orthopædist justified in employing mechanical treatment in a given case before resorting to tenotomy. I believe that, if he has control of his patient, he is not justified in carrying on mechanical treatment for the lengthening of muscles, fascia and ligaments in any case for a longer period than a very few weeks unless the progress is very marked. Mechanical treatment covering a period of years, for the purpose of stretching tissue, is certainly at this age of the world entirely unjustifiable. The application of mechanical means for the stretching of fascia in all instances should be abandoned. We have only to look back a few years and in many of the older text-books, and some of the modern, we find machines for curing Dupuytren contraction of the finger, by a traction machine. Those cases all relapsed. The orthopædist was driven into disgrace, and the surgeon reaped the fruits of honest labor performed. And so it is with the fascia of the sole of the foot, the fascia in other portions of the body, the ligamentous contraction producing hammer-toe, and a great many other varieties of contracted fibrous tissue that I might enumerate.

These are clearly cases for the knife. That is not to say by use of instrumental work covering periods of month and years it is not possible to overcome many of these deformities; but unless careful bracing is continued after the stretching has been done, and even then the cases will surely relapse, and they usually do relapse, as is evidenced in the contraction of the finger that I have just mentioned. We have emerged from the cloud of septic ignorance into the bright sunshine of antiseptic progress, and to-day the objections which were urged against the operative work no longer hold good.

How shall these operations be performed? There are three methods now of lengthening tendons and fibrous tissue, namely, subcutaneous work, open incision, rupturing by force.

We will first consider subcutaneous tenotomy. Subcutaneous tenotomy should be performed upon all tissues which can be easily reached and divided with a knife without danger of cutting important blood-vessels or nerves. Nearly all of the tendons of the extremities can be with safety cut subcutaneously, and certainly one would never think of performing a large operation when a smaller one would do. And then again, when an open operation is performed, adhesions, sepsis and wound infection are more likely to occur than in subcutaneous work. Tendons passing through fibrous canals, as for instance those of the finger, should not be operated upon in the fibrous sheath, because adhesions usually follow. There is, however, at the present time, but little danger from wound infection, and I have no serious objection to an open incision being performed. It should be, however, resorted to only where there is danger of cutting important blood-vessels or for other reasons than to simply divide a tendon or nerves. The tendo Achillis, I believe, should always be divided subcutaneously. Dr. Wilson, of Philadelphia, has done some excellent work upon the tendon by open incision. He resorted to a method which I have resorted to a great many times — which I will allude to later — of splitting the tendon, cutting each half off in opposite directions, and suturing it. Keene, I believe, is given credit as being the author of the operation. Lange claims priority, and so do others. I will here add that in 1888 before the class of the Post-Graduate School, Dr. Abbe being present, and at his suggestion, I performed the same operation upon the biceps tendon of the forearm, through an open wound, lengthening the tendon several inches. The result was perfect. This, I think, antedates anything that has been published upon the subject.

I now perform upon the tendo Achillis and the biceps tendon the same operation, only I perform it subcutaneously, introducing the knife over the tendon, splitting it and cutting it out both ways, allowing it to slip up and lap. In this way I have lengthened the tendon

two inches and a half. The split in the tendon in that case was made one and one-half inches. The ends remained in contact.

The sterno-mastoid muscle should always be divided by an open incision along the clavicle. The iliacus internus and psoas muscles should always be divided at their attachment to the lesser trochanter by an open incision beginning at the greater trochanter and extending down the leg four inches. With a periostotome one can work over the femur, hugging it closely, and with safety detach the tendon from its attachment. I did this once subcutaneously, and ligated the femoral about ten minutes after. I would do open incision to lengthen the biceps of the arm, or split the tendon subcutaneously. Open incision should be performed when the ham-string tendons and all tissues are shortened. This is a favorite operation of Schede's, of Hamburg. I have performed the operation many times, and now have a case in Charity Hospital which I will hope to have the honor of presenting to you at some future meeting.

I mention these three because they are the tendons with which we have more frequently to do. The fasiculus given off from the tendon of the ring finger should be removed with an open wound to make the hand more useful for piano playing. Open incision when performed on the sole of the foot for the relief of talipes varo equinus is not performed for the exclusive purpose of seeing just what is being cut, but to lengthen all the shortened tissues which hold the foot in the abnormal position.

RUPTURING OF TISSUE BY GREAT FORCE.

This is, in the treatment of club-foot, usually employed together with tenotomy of important tendons; ligaments and fascia at the same time being ruptured by force. Under other circumstances I do not believe that it should be substituted for either subcutaneous tenotomy or open incision.

After the contracted parts have been divided by one of these three methods, how will the limb be dressed? What will be the after-treatment? The teaching, in vogue in England by many as well as in this country, is to divide these parts and leave the limb in the deformed position, allowing union to take place between the tissues and then gradually stretch them to place. This was frequently followed by non-union of tendons, by adhesions which ruined the future usefulness of the member and brought the operation into disrepute, and it led many of the orthopædists of England and America to employ instrumental means and discard the knife entirely. To this most unscientific procedure Sayre struck the death-blow in a very able article, in which he urged, and gave his own experience, the immediate correction of the deformity, allowing the severed ends of the tendon to separate. This procedure, in my opinion is scientific, and during the many years that I have employed it in hundreds of tenotomies, I have yet to see the first case of non-union or material impairment of the functions of the tendon.

Over-correction of any deformity should be practised. I have seen tendons separate six inches, and still a perfect reproduction was the result.

When open incision has been performed, the same methods of dressing and after-treatment should be followed. The wound should be, if possible, closed and dressed antiseptically, the parts should be kept at perfect rest for at least six weeks after the operation, after which, if deemed advisable, suitable braces can be applied.

To illustrate the difference of opinion which exists among various orthopædists, I desire to present to you a case this evening, together with its history, of a very interesting deformity of the feet. This boy is thirteen years of age, born in London, was a patient of Mr. Adams in London, referred by him to Dr. L. A. Sayre in this city. He was treated under Dr. Sayre's direction for one year. He was suffering from partial paralysis which had produced a shortening of the tendo Achillis, which drew up the heels. As he walked, the tendency was to throw his foot inward and I have no doubt that, before many years, he would have developed a double talipes varo equinus. Mr. Adams when he referred him to Dr. Sayre, placed a very severe injunction upon the mother to allow no American to operate upon his tendons, else the feet would surely be ruined.

After he had been with Dr. Sayre for one year with no improvement, the mother then consulted a well-known conservative orthopædist of this city, who advised her to do nothing, but to build up his physical condition. She then consulted a third, Dr. Shaffer, who informed her that by applying interrupted traction with his machine, for one or two years, he thought he could cure the deformity. The mother consulted me on September 23d, and I informed her that I believed that tenotomy of the tendo Achillis should be performed (the feet could not be placed at a right angle with force). On September 25th, assisted by Dr. Plympton, Dr. Goodwin and Dr. Steele, of St. Louis, I performed the operation and immediately placed the feet in the super-corrected position. They were kept in this position for six weeks and were again put in plaster for two or three weeks more. He was allowed to walk with the plaster-of-Paris until the braces were adjusted. The tendons were lengthened two and one-half inches, and upon examination, I think it will be difficult to determine where the new tendon begins and the old ends.

I quote this case to illustrate the difference of opinion existing in the orthopædic profession.

An interesting case came to my office, aged fifty three, C. J. Cole, of Greenwich, Conn. It was a case of double talipes varo equinus, operated upon when he was twenty-four months old, by Dr. Hubert, of Utica, N. Y.; subcutaneous tenotomy of both Achillis was performed. After-treatment was carried out by bandages. I found, fifty-one and a half years after the operation, the following condition: Feet perfectly staight, calves well developed, tendons firmly united and much enlarged at point of union. There was an osseous deposit in this new material. He went through the war, had no fatigue, never felt any weakness in ankle or calf. It was a reproduction of one and one-half inches of tendon. This is interesting because it is almost one of the first cases of tenotomy ever performed.

This brings us to the consideration of the subject of reproduction of tendons. Gluck, in 1884, performed some very interesting experiments. Among others, was the reproduction of tendons by the introduction of catgut, in the track of the tendon. He also introduced tendons from the lower animals and reports excellent results.

I wish to report a case, which I presented to the

Surgical Section of the Academy of Medicine in 1891, April meeting. The record book of that meeting gives a correct report of the case, whereas the report as made in the *Medical Record* of August 8, 1891, makes no notice of the points which I now will present to you. The man had had an incision through the wrist which had suppurated, cutting the median nerve and all the tendons of the wrist; sloughing had destroyed many of the tendons for a distance of six and eight inches. The tendons of the ring finger and the little finger, were uninjured. The tendon of the index finger and of the thumb was destroyed for a distance of six in one, and eight inches in the other.

At Charity Hospital in February, 1891, I performed the following operation: After removing all cicatricial tissue, dissecting out and suturing the nerve, I found the condition as described above. I united the muscle which went to the middle finger to the tendons of the ring and little finger, and united the distal end of the tendon of the middle finger to that of the ring finger, I then, with catgut, sewed in between the ends of the tendon of the index finger, a distance of eight inches, four or five strands. I did the same thing with the thumb, a distance of six inches. The hand was placed in the supra-flex position, after the ulnar nerve had been united and the wound closed, and left it for three weeks. Within one week sensation had returned to the paralyzed hand and at the end of three weeks the man was able to move all of his fingers. When the case was presented at the Academy of Medicine, he was capable of moving the index finger and thumb. When he was discharged from the hospital, he had very good motion of all of the fingers, excepting the middle, ring and little finger, they moving together. The index finger and thumb moved separately. Here was an instance of a reproduction of eight inches of tendon of the index finger and six of the thumb, by means of catgut. In this case an anastomosis was established between muscle which had no tendon or was useless, to tendons which communicated with other fingers.

It is quite practical, where tendons are lost, to introduce strands of catgut, or tendons from the lower animals and reproduce them.

THE QUESTION OF ANASTOMOSIS OF TENDONS.

Where the power of one tendon is lost, it is quite practical to attach to that tendon another tendon of a muscle which is not paralyzed; or, as in the case already quoted, where tendons are, to a considerable extent, destroyed, it is better to unite them and the muscle to a tendon lying contiguous. To illustrate: April 21st, this year, I repeated an operation which I had performed many times for other conditions, but for the first time in a talipes calcaneus. Willett's operation has not proven all that was hoped for it. Judson has offered a very fair and just criticism of Willett's operation. Therefore, I decided in this case to perform an original operation. There was total paralysis of the gastrocnemius and soleus. I made an incision down upon the tendon, divided it, severed the tendon, stitched it together. The long flexes of the toe were not paralyzed. These were divided at the inner malleolus, the distal ends firmly stitched to the periosteum, and the proximal ends to the tendo Achillis, hoping that these muscles would take the place of the paralyzed gastrocnemius and soleus. The foot was dressed at right angles, redressed at the end of three weeks, redressed again at the end of four weeks. Now he comes to us to-night, the final dressing to be removed and the shoes adjusted; and I present him for your examination. We must bear in mind that this foot has been fixed almost three months in plaster dressing, and it will not be expected that he will have much muscular control over it. The splint which I shall adjust now is Judson's, which he will wear for six months or a year, after which I will either present him here to you or report on the case. Electricity and massage will be employed.

Quite recently, Dr. B. F. Parish, reported to the *New York Medical Journal*, October 8, 1892, a similar case upon which he operated in May 25, 1892, for the relief of flat-foot by grafting to the anterior tibial tendon some of the long extensors, hoping thereby to hold up the arch of the foot. What the ultimate result will be can only be determined by time. Believing that flat-foot is not produced by paralysis of the anterior tibial tendon, I cannot see that much will be gained by this operation. He claims priority of grafting a muscle paralyzed or useless to one vital or useful. My wrist case was performed in Charity Hospital in February, reported to the Academy in April, and published soon after in their reports. The French and Germans had already grafted tendon to tendon in similar cases in 1874 and 1876, so there is nothing really new under the sun.

Clinical Department.

A USEFUL METHOD OF DRAINAGE IN SUPRAPUBIC CYSTOTOMY.

BY FARRAR COBB, A.M., M.D.,
Surgical House-Officer at the Massachusetts General Hospital.

The most difficult thing in suprapubic operations on the bladder where constant drainage must be kept up is to drain off the urine by siphonage with any degree of success at all. In the majority of cases the lining membrane of the bladder is in a state of chronic inflammation, suturing is contraindicated, and the wound in the bladder and abdominal wall must be left wide open.

In a recent case under my care, in the service of Dr. H. H. A. Beach, after trying several methods of drainage and finding that all of them sooner or later flooded the patient and bed and kept the wound filled with a pool of urine the following method was devised, and has worked admirably, draining the bladder perfectly and keeping the patient dry:

An ordinary glass drainage-tube rounded at the lower end with a collar at the top, such as used in abdominal wounds, was passed into the bladder and into this was pushed for its whole length a wick or tight roll of iodoform gauze while the free end of this about three feet long was drawn through a flexible rubber-tube and led over the side of the bed into a bottle, thus establishing capillary drainage through a set of tubes. It was found that no gauze could be used to pack the wound around the tube because of its capillary action defeating somewhat the perfect work of the gauze in the tubes. The recti muscles hold the glass-tube firmly enough and the wound is best packed with absorbent cotton thoroughly impregnated with oxide of zinc ointment which acts as an efficient dam and

antiseptic dressing and prevents any irritation of the skin. Over this dressing and around the juncture of the rubber and glass tubes a light dressing of gauze or cotton can be loosely fastened. In this case it kept dry for twelve hours at a time. If the bladder was sucked dry after each dressing with the ordinary suction apparatus in the glass tube and then the combination gauze and tubular drainage used it was found that the gauze drained away the urine as fast as it was secreted. With this method it was found necessary to dress the case only once or twice a day and yet the patient kept perfectly dry. The gauze wick in the tubes was changed only once in twenty-four hours. It was found that this method did away with the annoying pain and tenesmus which before was obstinate.

No mention of this use of gauze drainage has been found by me and it has proved of so great value in securing almost perfect drainge in these hitherto very troublesome cases that I have been led to thus briefly describe it.

New Instruments.

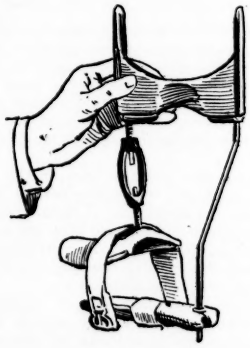
APPARATUS FOR FRACTURE OF THE HUMERUS THROUGH OR NEAR THE DELTOID INSERTION.

BY Z. BOYLSTON ADAMS, M.D., M.M.S.S., FRAMINGHAM, MASS.

APPLICATION.

(1) THE arm is bent at a right angle and supported by a fillet at the wrist.

(2) The crutch is pressed firmly into the axilla, the lower splint put under the forearm, while the brass rod is adjusted behind the elbow and fastened by nuts to the splint.



(3) The upper splint is then placed over the arm as near the elbow as possible, and the double screw is turned until firm and equal pressure is made upon the extremities of the crutch.

(4) Straps are now put on to hold the two splints in connection upon the forearm, and the broad piece of webbing buckled around the elbow keeps all in place.

EXPLANATION.

The fleshy tendons of the pectoralis muscle in front and of the latissimus dorsi behind, are shortened by the pressure of the crutch in the axilla. The crutch is of peculiar shape adapted to the object. By this pressure upon the borders of the axilla, the deltoid is completely *antagonized*, and the upper fragment drawn inwards.

The extension applied between the elbow and forearm below and the crutch above, straightens out the *biceps* (especially the long head), and the *triceps*, which being closely related to the bone, back and front, are found to fix the fragments in their true relation.



No coaptation splints are required, the screw and nuts permitting exact adjustment of pressure and bringing the bone into line.

EFFECT.

There is no discomfort; all pain and swelling disappear; and at any time the surgeon can put his fingers on the broken bone. The result is found to be all that could be wished.

This apparatus was designed and used for the left arm of a man of five feet six inches. It can be easily reversed for the right arm, and allows some lengthening for a larger subject.

A NEW HOSPITAL FOR NEW YORK. — A new hospital to be known as Grace Hospital will be begun next fall in New York. There will be a main hospital and three independent buildings for old men, old women and children.

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

Eighth Annual Meeting, at Washington, D. C., May 30, 31 and June 1, 1893.

(Continued from No. 7, p. 172.)

FIRST DAY. — AFTERNOON SESSION.

ON A SIMPLE CONTINUED FEVER,

by Dr. G. Baumgarten, St. Louis, Mo.

In St. Louis and vicinity, and without doubt in other localities of the Mississippi Valley — during the past fifteen years, and perhaps longer — cases of continued fever have been met with which are often interpreted as typhoid fever, and by many called typho-malarial, (though differing *toto cælo* from Woodward's "typho-malarial") — a fever which is characterized by high temperature, even hyper-pyrexia, a sudden onset rather than a gradual rise, a fever curve of greater irregularity than a typical typhoid, a duration of from two and one-half to five weeks, sometimes terminating by crisis instead of lysis, a total absence of local symptoms or signs of localization, and such general symptoms only as may fairly be ascribed to the high temperature itself. It has no relation whatever with malaria, and in my estimation it differs so widely from typhoid fever that it cannot be classified with the latter without doing violence to the classical definition of typhoid. It is not, in its classical features, a walking typhoid, nor an abortive form, and its persistent, and often extreme, high temperatures, preclude the idea of a *mild* form.

In the absence of all localization, and ignorance of the (evidently infectious) pathogenic cause, I am tempted to adhere to the provisional name by which I have privately called it these fifteen years, a *febris continua simplex*. In 1888 my colleague, Dr. P. G. Robinson, presented to the Association a paper on the same disease, observed in the same locality, and I have little doubt that it has been alluded to in the paper of Dr. I. E. Atkinson, of Baltimore, in 1887.

During the past autumn, St. Louis was visited by an epidemic of typhoid fever, chiefly in the months of October, November and December. Both before and during this period, there was also an unusual increase in the number of cases of the continued fever in question. It then became the subject of more than ordinary observation and comment by many physicians, and the incisive points of difference between the two classes of cases were generally recognized.

Dr. I. E. Atkinson believed that the cases recorded by Dr. Baumgarten were varieties of typhoid fever. Typhoid is the almost universal continued fever; and most of the continued fevers that are from time to time written about are sooner or later relegated to the class of typhoid fever. Mountain fevers, mucous fevers, gastric fevers, nervous fevers and typho-malarial fever have all become classed as typhoid fever. Typhoid, especially in children, is often atypical. It is a common thing for all of the characteristic symptoms of typhoid, except fever, to be absent in children. We often see cases running quite different courses which are due to the same origin. We need a good deal more evidence to make us accept the existence of another independent continued fever.

Dr. Baumgarten thought it was reasonable to suppose that there were continued fevers developed by the specific typhoid germ, and others, running a similar course (as far as the fever was concerned) that were not so caused. We certainly have no proof that the cases described are cases of typhoid fever. It would not be surprising if bacteriological investigation should prove these cases to be identical as to their origin with typhoid fever, but still the desire to separate them as a clinical form would not be amiss in view of the bearing upon treatment.

CREASOTE IN THE TREATMENT OF TUBERCULOSIS,

by James T. Whittaker, Cincinnati.

Creasote has no real influence upon the fever of phthisis. The writer has tested this fact in every way. Though the patient be saturated with the drug by every avenue — by the stomach, by the lungs, by the bowels, by the skin, by all these methods at once — creasote does not control the fever.

Creasote acts on the stomach. It excites the appetite and lessens the distress of indigestion. Most patients improve decidedly for a time under the immediate change of nutrition.

In the study of the action of a remedy in tuberculosis we must have more definite knowledge of the nature of tuberculosis and what it is that is to be accomplished. In this regard there is now more definite knowledge. It is now known that the whole character of consumption, that is, tuberculosis pulmonum, was not determined by the discovery of the bacillus tuberculosis. It is now known that tuberculosis of the lung is at least not a pure process. Other organisms are associated with the tubercle bacillus in tuberculosis pulmonum, and to them are due some of the symptoms, especially the hectic fever. Streptococci are the associated organisms in the majority of cases. Creasote has probably no effect upon the streptococcus infection, because it shows no real effect upon the liver. It inhibits the growth, or actually destroys some of the organisms which induce fermentation in the stomach and intestine without interfering with the actual processes of digestion, and thus contributes to the cure of consumption — as does arsenic, hydrochloric acid, etc. — through the avenue of nutrition. Considered from a clinical standpoint, creasote holds its place. It is an easy routine practice and is perfectly harmless in any dose. In Dr. Whittaker's wards at the Good Samaritan Hospital all the tuberculous patients are put upon creasote immediately upon entry. Five drops of a mixture of creasote and tincture of nux vomica (or, where strychnine is contraindicated, tincture of gentian) are given in a teaspoonful of whiskey and a tablespoonful of water three times a day after meals. The dose is increased by one drop daily up to ten, whereupon additional doses are given at 10 A. M., 4 P. M. and at bedtime. The body shows signs of saturation at sixty drops per day. All of his cases in non-febrile periods are treated with tuberculin, which remains the only specific remedy for pure tuberculosis, but which has no effect (or only a bad effect) upon septicæmia.

Dr. Wood thought that in the rage of bacteriological study physicians often forgot that they ought to treat the individual sometimes and not the bacteria. Some years ago every phthisical patient was dosed with sulphuretted hydrogen. The results were, at first, said to be very extraordinary, but in a few months all the syringes and sulphuretted hydrogen squirts in general were relegated to the past. Creasote seems

to be running through very much the same history. Both sulphuretted hydrogen and creasote are valuable remedies, but neither of them acts in any way specifically upon the bacillus; they do good by their action on the individual whois the unfortunate host of the parasite.

DR. TRUDEAU, of Saranac Lake, said that the tubercle bacillus bore cheerfully a good deal of medication that was disastrous to its host. In his experience in animal tuberculosis, no matter how large the dose of creasote injected, the disease developed regularly in its natural course. It seemed to him that in phthisis it did good by improving the condition of the stomach and intestinal canal, and he had not quite discontinued its use. Like arsenic, if it improved the appetite it was well to keep it up, but if it disagreed with the stomach it should be omitted. It was in no sense a specific.

THE INTESTINAL ORIGIN OF CHLOROSIS,

by F. FORCHHEIMER, Cincinnati.

The conclusions of this paper: (1) Chlorosis is due to oligochromæmia. (2) Chlorosis is the result of faulty hæmopoiesis. (3) In chlorosis the fault in hæmopoiesis lies in diminished hæmoglobin production. (4) Hæmoglobin is principally formed in the intestine, proven (*a*) by direct investigation upon lower animals, and (*b*) indirect observation upon the human being. (5) Hæmoglobin formation can be increased by the introduction into the intestine of agents not containing iron, but preventing putrefaction. (6) Chlorosis is due to a prevention of hæmoglobin formation, by destructive agents acting upon the precursor of hæmoglobin in the intestine.

With the object of determining whether hæmoglobin was formed in the intestine, Dr. Forchheimer conducted a series of experiments upon rabbits with the following results: During full intestinal digestion the animals were put upon the rabbit-holder, the abdominal cavity was opened, and blood was examined from the terminal brauch of the mesenteric artery and its accompanying beginning of the mesenteric vein. Care was taken to open the blood-vessels as near as possible to the entrance or exit, so that arterial blood was examined immediately before it went into the capillaries of the intestine and venous blood directly as it came from them. Forty observations gave the following average:

In the artery: red corpuscles, 5,362,000; hæmoglobin, 78¾ per cent.
In the vein: red corpuscles, 4,546,000; hæmoglobin, 78¾ per cent.

The deductions derived from this were: The number of red corpuscles is diminished in the veins, while the quantity of hæmoglobin remains the same; therefore hæmoglobin is absolutely increased in the vein, and each red corpuscle carries more hæmoglobin in the vein than in the artery. The dilution of the venous blood, during digestion must be taken into consideration. This would probably also account for the diminution of red corpuscles. If the blood contains 78¾ per cent. hæmoglobin before going through the capillary circulation, takes up fluid there, and comes into the veins containing 78¾ per cent., it certainly follows that the hæmoglobin is increased in the veins. Each red corpuscle carries about 18 per cent. more of hæmoglobin in the veins than in the artery.

The results obtained in the treatment of 11 cases of chlorosis, all females, varying in age from fifteen to thirty-five years, by the use of salol and hydronaphthol were as follows: There was steady increase in hæmoglobin; the smallest amount gained in one week was 5 per cent., the greatest 20 per cent. With the rise in hæmoglobin all the patients began to improve. The nearer 80 per cent. the more the symptoms began to disappear; and from ordinary examination, without blood test, most of the patients would have been willing to have been discharged as cured. Hydronaphthol seemed more efficacious than salol, the results being more quickly obtained, and the rise more rapid.

DR. J. P. C. GRIFFITH, of Philadelphia, considered Dr. Forchheimer's contribution one of great value. He has shown chlorosis to be distinctly an intestinal disease, analogous to pernicious anæmia but distinctly different from it.

DR. H. C. WOOD considered Dr. Forchheimer's paper one of the most interesting that he had heard read before the Society. In view of the fact that the test relied upon for hæmoglobin was a color test, he desired to know whether any control experiments had been made between arterial blood taken from the finger and venous blood taken from the finger, to see if there was not an apparent rise in the hæmoglobin in the simple transversion of capillary into venous blood.

DR. FORCHHEIMER, replying to Dr. Wood, said that all possible precautions had been taken in the examination of the blood. Both arterial and venous blood had been examined, and the estimations were the results of many examinations.

EXPERIMENTAL OBSERVATIONS CONCERNING THE NATURE OF CHOREA,

by DR. H. C. WOOD, Philadelphia.

Dr. Wood's paper covered the following points:

Function of inhibition everywhere an important one in the animal system.

The spinal cord no exception to this.

The various choreic movements may originate either in the brain or in the spinal cord.

The spinal choreic movements largely the result of the loss of inhibition.

The St. Vitus Dance of children, the whole nervous system evidently involved.

The reflex phenomena of St. Vitus Dance are in accord with the theory that spinal inhibiton is depressed. Difficulty of explanation under other theories.

The action in chorea of certain drugs which have long been believed to affect spinal inhibition in accordance with the theory.

Relations of quinine to the theory, and the probability of its value as a practical medicament. Practical studies of the quinine treatment in animals and in man.

Dr. Wood's experiments with quinine cover two series of cases. The first series were upon chorea in the dog. Case 1: Setter; chorea seven months' standing; quinine; immediate great improvement and recovery in a month. Case 2: Pointer; chorea of long standing; quinine, twenty-four grains a day at first; no improvement; increased to forty grains daily, followed by complete recovery in two weeks. Case 3: Violent chorea; dog could not stand; quinine, sixteen grains daily; completely cured in twenty-five days. Case 4: Chorea improved on quinine treatment, but dog died. Case 5: Improvement under quinine, but dog died. Case 6: Specially violent chorea; quinine; cured. Canine chorea is a very intractable disorder, and previous to the introduction of the quinine treatment, a number of cases treated the past year gave not one favorable result.

The second series of cases were cases of chorea in children. The first two cases were treated in the Hospital of the University of Pennsylvania. Case 1. M. D., seven years. Chorea so bad she could not feed herself at all. February 3d, quinine treatment begun. In a week the child could feed herself. Improved steadily, and was discharged March 28th, entirely well. No other treatment except cod liver oil. Case 2. Jessie ——, ten years. Entered hospital February 3d, with chorea of four years' standing. Could not feed herself. Put on quinine. Could feed herself in a week, and has steadily improved since. Of nine cases treated in the University of Pennsylvania Dispensary by quinine, only two failed to improve; and of these cases one failed to improve upon arsenical treatment, but the second was relieved by Fowler's solution.

The result of clinical studies seemed highly favorable to the use of large doses of quinine in the treatment of chorea. A remarkable fact in the cases most carefully watched, was the complete absence of apparent physiological action. A child of ten years of age took 1,200 grains of quinine in the course of seven weeks, having part of the time taken day after day twenty-four grains a day with no physiological symptoms, only a steady growth in the general nutrition.

Dr. Whittaker thought Dr. Wood's results were extremely interesting, but that the investigations were defective in one regard — in that there was no examination made of the blood of the choreic dogs. Chorea is sometimes a manifestation of malaria, and it would be very interesting to know if malaria in the dog manifested itself as chorea.

Dr. Wm. H. Welch replied to Dr. Whittaker's observations, that Dr. Berkley and himself had made a careful study of the pathological anatomy of chorea in the dog, and examined the blood in one case. A protozoic organism was found in the intestines; but cover-slip preparations did not show the presence of the malarial or other organism in the blood.

Dr. William Osler did not consider Dr. Wood's results to be in any way extraordinary. To treat a disease like chorea with a drug which does good only within ten days or two weeks is not very satisfactory, and not much better than arsenic and other remedies.

SUBPHRENIC ABSCESS,[1]

by Dr. A. L. Mason, of Boston.

Dr. S. J. Meltzer, of New York, read a paper on the same subject.

In the differential diagnosis between subphrenic abscess and empyema we cannot rely exclusively on physical signs, neither altogether upon the etiology. By the physical signs, we cannot decide whether the fluid is located above or below the diaphragm. The objections to the unexceptional reliance upon the etiology are that there are a few cases of subphrenic abscess the primary cause of which is located in the cavity above the diaphragm, and there are cases of intrapleural effusion with an exclusive and pronounced abdominal history. A case in point was a child of twenty-six months which after an attack of pneumonia had what was supposed to be an empyema. Upon opening the pleural cavity very little pus was found but the diaphragm was found to bulge up into the thoracic cavity, and through it distinct fluctuation was discovered. The abscess was evacuated and drained, and the child made a complete recovery. This subphrenic abscess following pneumonia, was doubtless caused by the preceding pneumonia. Another similar case has been reported by Gæhde. The micro-organisms of these abscesses are probably the same that usually are found in meta-pneumonic empyemata, namely, the pneumococcus lanceolatus or the streptococcus pyogenes. We have to assume that they passed directly from the lesion in the lung into the space below the diaphragm into the lymph channels. Then there is a class of cases of empyema succeeding to pronounced abdominal symptoms: (1) those originating from gastric ulcer perforating directly into the pleural cavity; (2) those which accompany or follow several acute abdominal troubles, like typhoid fever, peritonitis, etc.

Dr. Wm. Osler briefly alluded to cases of subphrenic abscess which had come under his observation. The first case gave a history of dysentery. There were symptoms of abscess of the liver; diagnosis of pyo-pneumothorax subphrenicus; operation; recovery. The probable source of this abscess was in the appendix as at the operation Dr. Halsted was able to pass his finger far down into the flank reaching quite to the crest of the ilium. A second case was one of pyelonephritis, tuberculous colitis, with perforation of the splenic flexure of the colon and a formation of a perinephritic air-containing abscess. Incision and drainage, pulmonary tuberculosis and death. There was a remarkable air-containing tumor over the right kidney opposite the tenth, eleventh, and twelfth ribs, particularly interesting from the fact that it was resonant when the patient was on his abdomen but dull when he turned on his side. The third case was an instance of subphrenic abscess following an empyema. There had been an injury to the arm and back, amputation of the arm, erysipelas three weeks after the accident, signs of inflammation at the left base, development of pyo-pneumothorax, expectoration of fetid pus, septic fever, asthenia, and death. The sequence of events in this case was, wound of the kidney, subphrenic abscess, empyema, perforation of diaphragm and lungs, with discharge of pus. Two other cases of subphrenic abscess were operated upon by Dr. Halsted both making satisfactory recovery. The diagnosis in one case was that of liver abscess and the diagnosis in the other case was posterior empyema and it was not until the opening was made in the chest that it was discovered that the pus was subdiaphragmatic.

Dr. W. H. Welch thought that the withdrawal of a portion of the pus with a hypodermic syringe, and finding in it a mixture of bacteria, and particularly the presence of the bacillus coli communis, would make it strongly suspicious that the abscess communicated with the cavity of the alimentary canal. The presence of the colon bacillus in pleural effusions is extremely rare. He had never seen a case like that reported by Dr. Meltzer. He regarded Dr. Meltzer's explanation as the most plausible one. He did not think it necessary to assume that the direction of the lymph current was a decisive factor, for micro-organisms could travel with or against the current of the lymph channel. Peritonitis is widely recognized as a possible complication of pneumonia. The micro-organism is capable of setting up inflammation anywhere.

Dr. R. H. Fitz considered the term "subphrenic abscess" a clumsy one and thought it would be much better to consider this class of cases under the head of "subphrenic peritonitis," because the latter designates the anatomical condition present and includes cases

[1] See page 186 of the Journal.

where one has to deal with pus and also cases of serous peritonitis. In thus emphasizing the peritonitic nature of the processes we are led more directly to the etiology and also more directly to what is perhaps the best region for the treatment of this class of cases. When the thoracic element is considered too particularly the tendency is to operate through the thoracic walls, whereas the beneficial results which often occur are favored by an operation considerably below.

(To be continued.)

Recent Literature.

A Text-Book of the Theory and Practice of Medicine. By American Teachers. Edited by WILLIAM PEPPER, M.D., LL.D., etc. In two volumes, illustrated. Vol. I. Philadelphia: W. B. Saunders. 1893.

This text-book of the Theory and Practice of Medicine is offered to the medical profession and the large body of American medical students by some of the teachers of practical medicine in leading schools of this country; and the editor claims that it may be said to represent truly the best teaching of the science and art of medicine at the present time in this country. The names of the editor and of the other contributors suggest a fair basis for this claim, and an examination of the various articles in detail indicates that they have for the most part contributed the good work which might be expected from them.

The contributors to this first volume are Drs. J. S. Billings, William Pepper, J. T. Whittaker, W. Gilman Thompson, H. C. Wood and William Osler. The paper, the type, the illustrations and the general make-up of the book — a royal octavo of 900 pages — are excellent, and justify the choice of the publisher.

Elementary Physiology for Students. By ALFRED T. SCHOFIELD, M.D., M.R.C.S., etc. Small 8vo, pp. 372. Philadelphia: Lea Brothers & Co. 1892.

This is a small book, with many of the vices of its class, and few redeeming virtues to make it in any way better than its numerous fellows. Among its virtues must be reckoned the exceedingly well printed illustrations, gathered for the most part from standard authorities and generally familiar acquaintances of long standing. The best of the set is made up of two handsomely colored pages of microscopic specimens, the worst is a picture of the Anglican form of a "Davidson" syringe, illustrating action of heart and valves. The text is largely collated without very careful consideration and almost exclusively from English writers or translations; it is not always complete or fresh (for example, liver, p. 98), and is sometimes very inexact, as, for example, in the account of the Young-Helmboltz theory of color perception, and especially in the statement of Hering's views.

Electro-Therapeutics of Neurasthenia. By W. F. ROBINSON, M.D. 16mo., pp. x, 72. Detroit: George S. Davis. 1893.

In this little volume the author omits all considerations of symptomatology or other methods of treatment. His directions are clear and explicit, but our own experience has not led us to put as much value upon the therapeutic action of electricity in neurasthenia, or to lay as much importance upon the various details of application. The whole book might well have been condensed into a brief article.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, AUGUST 24, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

THE PAN-AMERICAN MEDICAL CONGRESS.

ON September 5th, the first Pan-American Medical Congress will open in Washington. Preparations for this Congress, which have been going on for more than two years, and which have entailed an enormous amount of work are now practically completed; and we have as a result a programme, or rather a series of programmes, with several hundred papers to be read before twenty-two sections. Among these papers are many which promise to be of the first importance, and the programme, as a whole, insures the success of the meeting.

The establishment of an international medical congress limited to the Western Hemisphere comes appropriately in the year dedicated to the memory of Columbus. An attempt was suggested to bring into closer relationship the different American nations, the two sections of which have always been more closely allied with Europe than with each other. A committee was appointed by the American Medical Association in May, 1891, the result of which was a resolution passed by Congress in July, 1892, by which the President of the United States was authorized and requested to invite the several governments of the Western Hemisphere to send official delegates to the meeting of the Pan-American Medical Congress, in September, 1893. All of the countries, practically, have appointed official delegates in response to this invitation, and the President will open the Congress in person. A large number of the colonies and a great many municipalities have also appointed delegates, as have the medical organizations throughout Latin-America. In this country a large number of well-known men have accepted different official positions, and have otherwise contributed to the success of the meeting. The number of names is so large that a congress of these contributors alone, if they all attend, would be numerically of good size.

The general regulations of the Congress provide for

the different officers and committees, but the time and place of future meetings is left for later consideration. The sections of the Congress are: General Medicine, General Surgery, Military Medicine and Surgery, Obstetrics, Gynecology and Abdominal Surgery, Therapeutics, Anatomy, Physiology, Diseases of Children, Pathology, Ophthalmology, Laryngology and Rhinology, Otology, Dermatology and Syphilography, General Hygiene and Demography, Marine Hygiene and Quarantine, Orthopædic Surgery, Diseases of the Mind and Nervous System, Oral and Dental Surgery, Medical Pedagogics, Medical Jurisprudence, Railway Surgery.

The official languages are English, Spanish, French and Portuguese.

It will be noticed that the subjects of the papers are more than usually specialized by the large number of sections. This cannot fail to increase the interest and attract discussion in subjects often lost in a more general section. The Governors of nearly all of the United States have appointed delegates to represent the sanitary interests of their respective States. These latter number nearly three hundred in the aggregate. It will be seen, consequently, that special interest attaches to the Section on Marine Hygiene and Quarantine, and on Hygiene, Climatology and Demography, in charge respectively of Surgeon-General Wyman, of the Marine-Hospital Service, and Medical Director A. L. Gihon, of the United States Navy. In both of these sections, discussions on different questions of public importance have had time allotted to them. The Section on Medical Pedagogics, the programme of which will be found on page 180 of the JOURNAL, is a new idea, and one which promises to be of such interest and importance, especially to medical teachers, that its adoption by other congresses may be expected.

The organizers and readers of papers have done their work, and it now remains for the profession at large to attend the meeting, and for each to do his share in discussion. At the close of the meeting the foreign members will visit different cities of the country, in many of which arrangements have already been made for their entertainment. In this way the medical resources of the country can be better shown and our hospitality better proved than by the more formal gathering at Washington.

ANÆSTHETICS AT THE LONDON HOSPITALS.

THE *Medical Press* has recently published a series of reports from the anæsthetists of eleven chief London hospitals upon the method of administering anæsthetics. They are most interesting and full of valuable details.

To most of American readers the statements regarding the use of ether will be not a little surprising. Nine of the eleven hospitals give a decided preference to ether as the best and safest anæsthetic, and while all make a more general use of chloroform or a mixture of chloroform and ether than is done here, they nevertheless use ether in a majority of the cases. The two exceptions to this use were at the Royal Free Hospital where ether "though strongly favored when possible," is not used to a great extent, and Kings College Hospital, where a mixture of alcohol, chloroform and ether, in the proportion of one, two, and three parts respectively, is used in nearly every case.

The reports showing differences in detail of administration are quite agreed as to the greater safety and usefulness of ether and the general class of cases when it is undesirable. Nearly all of the hospitals use nitrous oxide for minor operations, such as are done in an out-patient department. The majority use chloroform for children and persons of advanced age, or those suffering from bronchial disease; Dr. Hewitt, however, gives it in bronchitis and emphysema without trouble. Dr. Bourns, of Westminster Hospital, is inclined to use ether even for very old persons, as he thinks the general dread of ether inhalation in old persons is somewhat groundless, and when lung troubles follow an operation on an etherized old person it is more likely the result of exposure of the chest and the cooling effect of carbolized towels packed about the patient than due to the ether vapor.

Many of the statements are strong and decided. Mr. Ward, of St. George's, says: "I do not use chloroform unless there is a good and sufficient reason to give the coroner in case of a catastrophe"; though he considers chloroform safe if given with great care. Mr. Braine, of Charing Cross, says: "Ether is by far and away the most popular anæsthetic at this hospital, being administered to over seventy per cent. of the cases; chloroform is only administered when the nature of the operation compels its use, as in operations upon the mouth, tongue, or where from existence of lung troubles ether is contraindicated." At the London Hospital Dr. Hewitt says: "Ether is the anæsthetic now principally used. It is administered about twice as often as chloroform. Some few years ago a precisely opposite state of things existed, but an extensive and open-minded comparison of the two has resulted in a distinct preference for ether." The main consideration which has led to a more extensive employment of ether is this, it has been found that "hairbreadth escapes" and fatalities have conspicuously decreased in frequency since the change in practice has been effected.

Many of the hospitals begin the anæsthesia with nitrous oxide before giving the ether, and claim to have a quieter, quicker result with less ether, than if they began directly with the latter.

The ether is given through an inhaler in nearly every case, and apparently much less is used than in many of our hospitals. The Clover's inhaler is chiefly used, though Ormsby's and Junker's have many advocates. Great stress is laid on having the anæsthetic freshly supplied each day, the remaining portions in the bottle not being used again.

A not uncommon practice seems to be the use of both ether and chloroform in the same case at differ-

ent times, as, for instance, when under ether the patient shows a tendency to bronchial irritation or vomiting, the ether is removed for a while and chloroform used in its place. Again, at St. Mary's, "Drunkards and half-starved, broken-down patients require very careful management. We commence with ether, and when we reach the stage of excitement, which is pronounced, give a little chloroform and resume the ether when the patient is quiet and breathing well."

A noticeable fact in reading these reports is the undoubted advantage to be derived from a thorough and systematic supervision of the management of anæsthesia such as is the case in the London hospitals where there is an official anæsthetist to direct and give instruction to the students and house-officers in etherizing.

TREATMENT OF ALCOHOLISM BY LARGE DOSES OF STRYCHNIA.

THE treatment of alcoholism by strychnia has found many advocates in Russia, especially since the clinical observations of Tolvinsky and Partivisky in 1887. They gave strychnia by the mouth, in doses increasing from the sixtieth to the thirtieth of a grain three times a day. These doses seem small, but the results reported were favorable. The experiments of Jarokeosky on dogs in 1888 led him to formulate the conclusion "that strychnine enables the animal organism to receive large quantities of alcohol for prolonged periods without any apparent injury to the central nervous system."

Pombrak, another Russian authority, found strychnia a valuable remedy both in cases of chronic alcoholism and in those of dipsomania, "not merely curing the attacks, but abolishing the desire for drink." Even attacks of delirium tremens were influenced beneficially. He began with doses of one thirtieth of a grain; in more severe cases with one fifteenth of a grain.

It is worthy of note that Luton of Rheims first called attention to the remedial effects of nux vomica in alcoholism nearly twenty years ago. He was in the habit of administering one half grain of the extract or ten drops of the tincture three times a day in alcoholic trembling, in the cerebral troubles due to alcoholic poisoning, etc. It was Luton who called nux vomica the medicine of drunkards. Luton, however, recognized that nux vomica can have no beneficial effect when the alcoholism has arrived at the phase of plastic infiltrations and of granulo-fatty degenerations. Luton afterwards made trial of strychnine in hypodermic injections, and found that this drug when thus administered had marvellous efficacy in delirium tremens. Dujardin-Beaumetz adopted this mode of treatment in delirium tremens, with equally favorable results. He uses the following prescription:

Sulphate of strychnia	10 centigrammes.
Cherry laurel water	10 grammes.
Distilled water	10 grammes.

A hypodermic (Pravaz) syringeful contains five milligrammes (one-twelfth of a grain). In cases of furious delirium he makes an injection every half hour till four injections are given; then every hour, till the delirium is subdued. It is not an uncommon thing to practise these injections till two to four centigrammes (one-third to two-thirds of a grain) of strychnia are thus administered; and this treatment is pronounced "safe."

Lécuyé, a pupil of Luton, who in 1882 wrote a treatise on "Alcohol and Strychnine," reports similar successes in the use of strychnine, and considers this drug as the remedy *par excellence* of the nervous, cardiac and gastric troubles of alcoholism.

The strychnine treatment of alcoholism has been tried in this country and in England with varying success, and has been adopted in many institutes for the cure of inebriety as a part of routine practice. Experience seems to be daily justifying some portion at least of the claims made for this drug by the enthusiastic advocates of its use in the treatment of alcoholism (and not the least of its merits is said to be its wonderful power of sustaining the heart under conditions of extraordinary depression), but it cannot be relied on to the exclusion of other remedies as nerve sedatives and hypnotics, or of the proper hygienic treatment.

MEDICAL NOTES.

A LONG UMBILICAL CORD. — A case of an abnormally long umbilical cord is reported from Philadelphia. The child, a female at full term, was delivered after an ordinary labor. The cord measured 53 inches and was coiled around the neck four times.

A QUARANTINE OF LEMONS. — Surgeon-General Wyman has ordered that lemons imported from Naples be refused entry during the cholera epidemic in Italy. This order affects Boston less than New York as most of the lemon supply coming to Boston is brought from Palermo or Messina and not from Naples, ples, and lemons from the latter port only have been prohibited.

INSPECTION OF STATE QUARANTINES BY THE MARINE-HOSPITAL SERVICE. — The Solicitor of the Treasury has given his opinion that it is within the intention of the National Quarantine Act of February 15, 1893, for the Government to authorize the inspection, by proper officers connected with the Marine-Hospital Service, of the condition of State or local quarantines. Although the act does not expressly provide for the inspection of local quarantines by the Marine-Hospital Service, it appears clearly all through the act that such was the reasonable and fair intention of the law. The decision is therefore based upon the well-established and familiar principle of law that whenever a power is given by a statute everything necessary to make it effectual or requisite to attain the end is implied, and when a statute gives a right to impose a duty it also confers by implication the power necessary to make the right available or to discharge the duty. (Suth. on Stat. Cons., sections 341, 343, 344, 345, 390.) And statutes relating to the public

health are to be liberally construed. (Dwarris on Statutes.)

Yellow Fever. — No new cases of yellow fever have occurred at Pensacola. At Brunswick, Ga., there have been two cases and one death, that of the quarantine officer of the Marine-Hospital Service.

Cholera. — No new cases have occurred in New York this week, and but one death among the patients at quarantine who are all now convalescing. In Naples, the epidemic is declining, at least according to *official* reports. There are now about fifteen new cases each day and eight deaths. A few scattered cases have occurred in inland towns. In Russia, the disease is increasing very markedly, especially in Moscow, where there are some fifty new cases and twenty deaths daily. In Nijni Novgorod, the disease appeared last week, with one hundred and five deaths. Galicia has already had thirty deaths. In Hungary, there have been forty deaths each day in the valley of the Black Theiss. On the 17th, the cholera reappeared in Astrakan and Baku. Three deaths from cholera occurred in the eastern quarter of Berlin August 16th, but so far no new cases are reported.

A Hazardous Experiment. — Dr. Watkins, of New York, who was inoculated last year in Paris with a culture of cholera spirillum and recovered after a severe illness, has recently been inoculated at the Loomis Laboratory in New York, with a pure culture of the bacillus of tuberculosis taken from phthisical sputum. He believes that a healthy person, whose blood does not contain the so-called "third corpuscle," is absolutely immune to the bacillus. He has repeatedly examined his own blood and never found the dangerous corpuscle. If he unfortunately overlooked any of these third corpuscles and becomes infected it is only to be hoped that he will be able to cure the disease, as he claims he can, by the early eradication of the "tubercular blood corpuscle," or hematoblast, from the blood.

Diagnosis of Epilepsy by the Urine. — Dr. Gilles de la Tourrette claims that a diagnosis between hysterical epilepsy and that due to neoplasm can be made by the examination of the urine. He has found that there is an increase in the elimination of urea and phosphates during a convulsion due to a tumor, while the amounts excreted during an attack of hysterical epilepsy are diminished.

NEW ENGLAND.

Delegates to the Pan-American Congress. — Governor Russell has appointed John G. Blake, M.D., and J. Collins Warren, M.D., of Boston, Z. B. Adams, M.D., of Framingham, and Thomas Kittredge, M.D., of Salem, delegates to the Pan-American Medical Congress at Washington.

NEW YORK.

Bacteriological Diagnosis of Diphtheria. — President Wilson, of the Board of Health, has made public the report submitted at the last meeting of the Board by Dr. H. M. Biggs, pathologist to the Department, on the result of Dr. W. H. Park's investigations relating to the bacteriological diagnosis of diphtheria during the past fourteen weeks. A few months ago the number of cases of diphtheria reported in the city became so large as to create considerable alarm, and the Board of Health (as already mentioned in the Journal) took steps to ascertain whether many of the cases so reported were not in reality instances of what is now known as false diphtheria, that is, lacking the characteristic Klebs-Lœffler bacillus of true diphtheria. With this object in view, Dr. Park was appointed to the position of bacteriological diagnostician of diphtheria; and under his supervision culture tubes were prepared and distributed to various druggists throughout the city for the free use of the medical profession. Dr. Biggs reports that out of 431 cases examined between May 6th and August 12th about one-third have proved to be false diphtheria; 301 being true diphtheria, and 130 false diphtheria.

Professor Von Helmholtz's Visit. — Professor von Helmholtz, the world renowned eye specialist and inventor of the ophthalmoscope, arrived on August 16th by the North German Lloyd Steamship *Lahn*. After a short stay in the city as the guest of Dr. Herman H. Knapp, he left for Chicago. A number of other distinguished German physicians and scientific men came on the same steamer.

A Broken Neck. — Still another case of a man living with a broken neck is reported. The patient, who is in one of the Brooklyn hospitals, fractured the sixth cervical vertebra in diving from a spring-board sixteen feet high into five feet of water at Bath Beach. While the body is paralyzed from the waist downwards, the man is otherwise in good condition, and there seems now to be a prospect of his living indefinitely.

Miscellany.

SOME RESULTS OF FAITH CURE.

The reports from a recent faith-cure convention have some curious and interesting statistics. Out of two hundred cures reported thirty patients had made a diagnosis of organic disease; and there were the usual number of fractures which had been marvellously reunited by faith. There was no record made, however, as to the subsequent position and deformity. The time of this method of cure appears to be much shorter than that required by surgical means — as one case of a broken ankle was said to have been cured in five minutes.

The greatest curative effect of faith seemed to be upon erysipelas, for one hundred cases of speedy cure were reported. In what way the streptococcus is affected by a profession of faith was not clearly explained.

The only case not curable by this means appeared to be rupture of the heart; for one person testified

that by faith his child had been cured of colic, and a daughter of pneumonia. Their little one had been taken from them, but not by sickness; he died of a broken heart.

The further gathering of figures and the compilation of mortality statistics should not be neglected; for their results are curious and of some psychological interest.

THE HYPODERMIC USE OF NITRO-GLYCERINE IN EPILEPTIC CONVULSIONS.

THE occasional usefulness of nitrate of amyl in warding off an attack of epilepsy when given as soon as the least suspicion of an aura arises suggests the use of a rapidly acting nitrate not only before, but during the convulsion.

In the New York *Medical Journal* of July 29th, Bates reports the successful employment of nitro-glycerine in twelve cases of epileptic convulsions. In one case in which the patient was totally unconscious with marked muscular movement, a hypodermic injection of one one-hundredth of a grain of nitro-glycerine was given, and before the needle could be withdrawn total relaxation took place, consciousness returned, and the patient called for a drink of water. In one case only was a second dose required. In all the cases the use of the drug was followed by prompt return to consciousness, the patients recovered without the usual fatigue and general demoralization, and the after-effects of the attack were markedly lessened. The writer does not claim for the method that it is curative, but that it shortens the attack, saves fatigue, and has some influence upon the frequency of the attacks.

LOCAL CATALEPSY.

UNDER this title Mitchell describes [1] a curious group of symptoms, observed in a young woman seventeen years old of excellent history and general health.

In December, 1891, she several times dropped her school books from the left hand as if it were tired and suddenly grown weak.

"In April, 1892, on the ulnar surface of the third, and on the adjacent side of the little finger of the left hand, there appeared sundry small blisters or blebs containing serum, which caused some itching and came and went several times. In July, of the same year, she received a slight cut with a knife at the root of the left thumb. There was a good deal of suppuration, and the wound healed slowly. All the fingers then gradually became stiff, and have so remained ever since."

There was no muscular wasting of the hand, but a curious cataleptic condition ensued. The hand was held "with the wrist half extended, all the fingers in semi-flexion, the little finger slightly adducted on the palmar surface of the third finger, the thumb in close contact with the palmar surface of the index finger, and all rigid." There was slight muscular tremor in the forearm and hand. Voluntary motion of the wrist was possible, but not of the fingers. Passive motion was easy at first, but soon became difficult and after a few movements the fingers would become quite rigid and remain for many minutes exactly as placed. There were occasional automatic changes in the position of the fingers.

The sense of pain was lost in the whole left hand as high as the annular ligament, where it suddenly became acute again. Below this a slight pin-prick did not bleed; there was no sense of touch, localization, or temperature change. There was no tenderness over the nerve tracks in the arm, with the single exception of a minute area of pressure-pain in the middle of the flexor surface of the wrist, just above the annular ligament.

In every other way the patient was well and all the bodily functions normal. The rigid condition of the hand persisted during sound sleep. There was no evidence of any neuritis or degenerative nerve change. The author considered it of a hysterical nature in spite of the absence of other manifestations.

[1] American Journal of the Medical Sciences, August, 1893.

THE VOMITING OF PREGNANCY.

AT the last meeting of the London Obstetrical Society, Giles [1] reported the analysis of three hundred cases of pregnancy in reference to the occurrence of vomiting. He found that only about one-third of pregnant women were free from vomiting throughout their pregnancy; that the sickness began in seventy per cent. of cases in the first month, while in ten per cent., it began in the last three months. The sickness was least frequent in women between the ages of twenty and twenty-five, while ninety per cent. of primiparæ over twenty-five suffered from vomiting. There was less sickness during the third pregnancy than in others. Sickness during the first third of the pregnancy was thirteen per cent. more common among primiparæ than multiparæ. Women who habitually menstruated painlessly and scantily, suffered less than others, the degree of pain being a more important factor than the amount of blood lost.

The observation that the third child of a mother is usually the strongest is of interest in connection with the author's statement that vomiting was least frequent during that pregnancy.

He looked upon vomiting as a manifestation of nervous instability, and so dependent on the interaction of three main factors: (1) The increased nervous irritability of pregnancy; (2) a local source of irritation; (3) a ready efferent channel for nervous energy (the vagi).

[1] Medical Press, July 19, 1893.

OBITUARY. — SETH ROGERS, M.D.

DR. SETH ROGERS died August 6, 1893. He was born in Danby, Vt., February 13, 1823. The youngest of twelve children, a prosperous farmer's son, and possessing the conscience of his Quaker parentage, he earned, as clerk in a store, in spite of delicate health, the means for the medical education which was the dream of his early life. He studied medicine at the University of New York and in Castleton, Vt., where he graduated. After two years' practice in Worcester he went to Europe, in 1852, for sixteen months, to make up the deficiencies in his training, of which he was over-conscious, working for the most part in Paris with Trousseau and Valleix. He joined the Massachusetts Medical Society in 1855, and continued the practice of his profession in Worcester until 1862, except for a voyage to South America for his health in 1858.

In 1862 he became surgeon of Colonel Higginson's negro regiment, the First South Carolina Volunteers. But after

a year of devoted service, his health compelled him to give up active medical duties altogether. Four years of outdoor life in Pomfret, Conn., on a farm, where he went, as he thought, to die, brought sufficient restoration of health for him to establish a winter practice in Florida for thirteen years. After 1882 he limited his professional work to the care of patients in his own house in Pomfret and to consultations with his colleagues.

Dr. Rogers early learned to question everything in religion and politics and, later, medicine, and to seek in his over-trained conscience the guide for his life. He naturally grew up an abolitionist. As a physician he was a sincere searcher after the truth, honest, faithful, intelligent, devoted, full of courage and with a rare power of imparting his courage to his patients. He was handicapped all his life by illness which would have disabled most men, and yet he performed a life-work to be proud of.

As a man Dr. Rogers was one of those charming, picturesque characters developed by the stirring events of the long struggle against slavery. An innate nobility of life marked his whole career. Although with him living was a long fight against poverty, he was one of the richest of men and gave away, as few give, of that which is best worth receiving.

Correspondence.

A LAST GLIMPSE OF CHARCOT AT THE SALPÊTRIÈRE.

BOSTON, August 19, 1893.

MR. EDITOR: — The recent death of Prof. Jean M. Charcot, doubtless the most brilliant physician of his day in France, recalls a morning which I had the pleasure of spending with him at the Salpêtrière some three months ago. This hospital which was originally built by Louis XIII for an arsenal, occupies a large tract of ground away at the eastern part of Paris near the Gare d'Orleans. It is so inaccessible from those parts of the city which Americans mostly frequent, that it is rather difficult to get to it at the comparatively early hour at which the distinguished clinician makes his usual visit. On arriving I found that the public clinics were for the time suspended, which may have been on account of the then already manifestly failing health of the teacher. But fortunately, though not appearing in public, he was making his morning visit, and I was directed to his consultation room. Passing through the roomy courts which separate the several buildings, one sees sitting on benches under the great trees, the old women who are favored with a permanent residence in this beautiful spot. Beyond the line of buildings to the right on a little higher level is a shady park of several acres, quite as pretty as any in Paris and open like the courts to the old crones, who with their sewing in hand, wag their tongues with a vigor which makes up for the feeble quality of the product evolved from their weak old brains. Through the open windows are seen the large wards occupied as dormitories by the more chronic and not bed-ridden patients. Such wards have three tiers of beds running their length and are thus a little overcrowded although they are thoroughly comfortable old structures. The wards for the acuter cases, which we shall see later, have only the regulation two rows of beds, and each bed is surrounded by close fitting curtains of cotton, which when drawn, completely isolate the patient. A glimpse of a dining-room with tables laid for the ambulatory patients, discloses a half-glass of red wine at each cover. Altogether, the Salpêtrière strikes us as not at all a bad place, of a bright May morning.

At length we reach the building where Charcot has his consulting room. The patients whom he sees here are, of course, only such as can walk or be readily brought into his presence. He sits before the window, from which the light falls on the faces of the two or three patients who are kept occupying the chairs in front of him. The chief part of the examination is conducted by the middle-aged assistant, who apparently has had previous knowledge of the cases, which Charcot is seeing for the first time. The latter is a striking personality: a large, pale, smooth-shaven face, firm and decided mouth, unusual interocular and frontal breadth, the forehead high, and surmounted by abundant white hair, rising straight and falling backwards. The expression of face is grave and serious, not to say stern; the speech low, and to foreign ears at least, not distinct. Besides the assistants there are perhaps a dozen other visitors in the room — mostly middle-aged men — in fact, about as many as the small space can accomodate with chair room.

The walls of this room are, it is to be feared, calculated to divert the attention of the casual visitor from the cases immediately before us. For on these walls, in fact, almost entirely covering them, is a series of reproductions, photographic and in engraving, of those paintings in which the world's great artists have sought to depict the manifestations of hysteria and hystero-epilepsy. Prominent among them, of course, are pictures of the casting out of devils. Here are seen the demoniac youth from Raphael's Transfiguration and similar figures from the works of other Italian masters and from Rubens. Charcot has evidently made a diligent search through the Italian churches for good pictures embracing this subject, and has got together an astonishing array. By way of comparison with these great painters' conceptions of such phenomena, is placed a photographic copy of the well-known French picture of Charcot himself exhibiting in his clinic a woman with major hysteria.

Besides the more marked representations of the "possessed," we find also in the room pictures of various saints in ecstasy, as St. Francis in the act of receiving the stigmata, St. Cecilia and St. Anthony of Padua, in Murillo's painting at Berlin. In a word, this little room is a museum of hysterical manifestations as they have presented themselves to the observation or, as we must admit, perhaps more generally to the imagination of the masters in art.

But the hour is advancing. The professor will go into a ward to see a patient with reference to the localization of a focal brain lesion and, as we follow thither in his train, we notice, with regret, that while his intellectual strength has shown no abatement, his physical and nervous forces are greatly shattered. His gait is shuffling and unsteady. He walks with difficulty and finally totters to his carriage and is driven away. Can it be that, as has curiously happened to so many prominent medical men, he will fall a victim to one of those diseases to which he has devoted his special, life-long attention? If so, we feel that his self diagnosis will be accurate, however futile his treatment. It is now scarcely three months, and his illustrious career as student and teacher is closed.

C. F. WITHINGTON.

METEOROLOGICAL RECORD,

For the week ending August 12, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		W'th'r.*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S... 6	29.98	72	82	61	64	63	64	W.	S.E.	6	5	C.	O.	1.07
M.. 7	29.76	69	78	60	88	87	88	E.	W.	5	4	C.	F.	1.27
T.. 8	29.96	72	84	60	80	60	70	N.W.	N.W.	10	7	O.	C.	
W.. 9	30.14	74	82	66	60	71	66	N.W.	S.W.	4	10	C.	C.	
T..10	30.07	80	91	68	66	74	70	S.W.	S.W.	5	12	C.	C.	
F..11	29.95	72	77	66	77	95	86	S.W.	E.	1	6	C.	C.	
S..12	29.83	66	73	60	100	72	86	E.	N.W.	3	5	G.	F.	
☞	29.95		81	63			76							2.34

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 12, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	866	435	29.26	9.68	18.70	1.10	4.29
Chicago	1,438,000	—	—	—	—	—	—	—
Philadelphia	1,115,562	465	208	27.72	9.46	18.36	1.98	1.76
Brooklyn	978,394	—	—	—	—	—	—	—
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	236	109	26.88	12.18	20.00	—	2.94
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	120	59	22.41	6.64	14.11	—	2.49
Cincinnati	305,000	94	40	23.32	8.48	16.96	1.06	3.18
Cleveland	290,000	142	88	46.20	4.90	40.00	4.20	2.10
Pittsburg	265,709	—	—	—	—	—	—	—
Milwaukee	250,000	131	94	40.28	4.56	34.96	—	2.28
Nashville	87,754	19	6	21.04	15.78	15.78	5.26	—
Charleston	65,165	33	4	15.15	18.18	15.15	—	—
Portland	40,000	14	3	21.42	7.14	21.42	—	—
Worcester	96,217	42	31	61.88	7.14	54.74	2.38	—
Fall River	87,411	64	37	54.60	9.36	51.48	3.12	—
Lowell	87,191	59	42	47.32	3.38	47.32	—	—
Cambridge	77,100	32	12	40.69	15.65	31.30	—	—
Lynn	62,656	30	16	40.00	20.00	33.33	—	—
Springfield	48,684	26	17	38.50	—	38.50	—	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	27	17	48.10	7.40	44.40	—	—
Holyoke	41,278	—	—	—	—	—	—	—
Salem	32,233	16	9	56.25	—	43.75	—	12.50
Brockton	32,140	12	6	16.66	33.33	16.66	—	—
Haverhill	31,396	—	—	—	—	—	—	—
Chelsea	29,994	10	6	10.00	10.00	—	—	10.00
Malden	29,394	6	3	33.33	33.33	33.33	—	—
Newton	27,556	—	—	—	—	—	—	—
Fitchburg	27,146	15	13	59.94	6.66	53.33	—	—
Taunton	26,972	28	15	46.41	3.57	42.84	—	—
Gloucester	26,688	10	5	20.00	20.00	—	10.00	10.00
Waltham	22,958	7	3	28.56	14.28	28.56	—	—
Quincy	19,642	5	4	20.00	—	20.00	—	—
Pittsfield	18,802	6	3	66.66	—	66.66	—	—
Everett	16,585	13	10	30.76	—	30.76	—	—
Northampton	16,331	2	0	100.0	—	100.0	—	—
Newburyport	14,073	5	2	—	—	—	—	—
Amesbury	10,920	3	0	66.66	—	—	—	—

Deaths reported 2,602: under five years of age 1,321; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fevers), 846, diarrhœal diseases 643, consumption 238, acute lung diseases 231, diphtheria and croup 71, whooping-cough 35, typhoid fever 31, measles 15, cerebro-spinal meningitis 15, malarial fever 15, scarlet fever 13, erysipelas 7, small-pox 1.

From whooping-cough New York 14, Philadelphia 10, Boston 4, Cincinnati and Cambridge 2 each, Washington, Worcester and Lynn 1 each. From measles New York 10, Philadelphia 4, Fitchburg 1. From malarial fever New York and Washington 6 each, Philadelphia 2, Boston 1. From cerebro-spinal meningitis New York 9, Philadelphia, Worcester, Cambridge, Lynn, New Bedford and Marlborough 1 each. From scarlet fever New York and Milwaukee 3 each, Boston 2, Philadelphia, Taunton and Woburn 1 each. From erysipelas New York 4, Philadelphia 3. From small-pox New York 1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 12, 1893, TO AUGUST 18, 1893.

By direction of the President, the retirement from active service, this date (August 12, 1893,) by operation of law, of LIEUT.-COL. JOHN H. JANEWAY, deputy surgeon-general, under the provisions of the act of Congress approved June 30, 1892, is announced.

Leave of absence for one month, to take effect when relieved by another medical officer, is granted FIRST-LIEUT. HARLAN E. MCVAY, assistant surgeon, San Carlos, Arizona Territory, with permission to apply for an extension of fifteen days.

Leave of absence for twenty days, to take effect upon the conclusion of his examination for promotion, is granted FIRST-LIEUT. JAMES D. GLENNAN, assistant surgeon, U. S. A.

MAJOR HENRY R. TILTON, surgeon, U. S. A., is granted two months' leave of absence, when relieved from duty at Fort Wayne, Michigan.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING AUGUST 19, 1893.

A. M. MOORE, surgeon, and C. W. RUSH, passed assistant surgeon, placed on retired list.

R. M. KENNEDY, assistant surgeon, promoted to passed assistant surgeon.

J. H. CLARK, medical director; C. H. WHITE, medical inspector, and J. L. NEILSON, surgeon, ordered as members, Medical Examining Board.

M. F. GATES, passed assistant surgeon, from Naval Hospital, Portsmouth, and recorder, Naval Medical Examining Board, September 1, next.

A. R. WENTWORTH, passed assistant surgeon, ordered to Naval Hospital, Portsmouth, N. H.

A. C. GORGAS, medical director; C. A. SIEGFRIED and H. G. BEYER, surgeons, ordered as delegates to the Pan-American Medical Congress.

B. S. MACKIE, and L. G. HENNEBERGER, surgeons, to Naval Academy to examine applicants for admission to Naval Academy.

ELEVENTH INTERNATIONAL MEDICAL CONGRESS.

In consequence of the sanitary condition of several of the European States, which prevents their medical men leaving home, and, following the advice of many of the most prominent scientists, both Italian and foreign, the Executive Committee of the above Congress has decided, by a large majority, to postpone the meeting till April, 1894. The exact date of the inauguration will soon be fixed.

APPOINTMENTS.

CHARLES H. WINN, M.D., of Roxbury, and LAURENCE COLLIER, M.D., of Boston, have been appointed medical examiners on the second Board of Pension Examiners for this district.

RECENT DEATHS.

TIMOTHY STONE PINNEO, M.D., died at Norwalk, Conn., August 9th, aged ninety years. He was one of the oldest alumni of Yale. For a time he practised medicine in the South, but failing health obliged him to abandon this field. He was professor of belles lettres in Marietta College, Ohio, and the author of Pinneo's Grammars.

S. J. F. MILLER, M.D., of Cincinnati, died August 9th, aged fifty-six years. He was at one time surgeon at the Soldiers' Home at Togus, Maine.

JEAN M. CHARCOT, M.D., the distinguished French physician, died at Morvan, France, August 16th, aged sixty-eight years. Of wide clinical experience, he had devoted himself chiefly for the last thirty years to diseases of the nervous system. Of late years he has been especially interested in the scientific study of hypnotism. He was the founder, and till his death, the editor of the *Archives de Neurologie*. He took a large part in the direction of the *Revue de Medecine* and the *Archives de Pathologie Experimentale*. He was a member of the Institute of France, of the Royal Irish Academy, of the Royal Medical Chirurgical Society of London. His best known books are perhaps his "Leçons Cliniques sur les Maladies du Systeme Nerveux," and his "Leçons du Mardi à la Salpêtrière."

BOOKS AND PAMPHLETS RECEIVED.

Bellevue Hospital Medical College of the City of New York. Circular of Information, 1893-94.

Fifteenth Annual Announcement of the St. Louis College of Physicians and Surgeons, Session of 1893-94.

Transactions of the Medical Society of the State of New York for the Year 1893. Published by the Society. 1893.

Thirteenth Annual Announcement of the College of Medicine of the University of Denver, Session of 1893-94. Catalogue of Alumni and of the Matriculates and Graduates of the Session of 1892-93.

Station-list of Officers of the Medical Department and Hospital Stewards of the Hospital Corps, United States Army, July 1, 1893, or at date of last report received at this office. Washington. 1893.

Introduction to the Catalogue of the Collection of Calculi of the Bladder, upwards of One Thousand in Number, Removed by Operation. By Sir Henry Thompson, F.R.C.S., M.B., London. London: J. & A. Churchill. 1893.

Lecture.

LECTURES ON SURGERY.[1]

BY DAVID W. CHEEVER, M.D.,
Professor of Surgery in Harvard University.

XIV.

FROST-BITE AND BURNS.

WE are all quite familiar with the phenomena and appearances of simple exposure to cold. The first effect produced upon the surface is to drive the blood away from it. The part becomes very white; and then, if the exposure to cold is only brief, reaction takes place promptly. The exposed surface becomes very red and congested; burns; glows; tingles; if exposed a little longer, is the seat of intense pain from the returning circulation.

These phenomena, on a small scale, on the surface of the body are due to shrinking of the vessels from the stimulus of the cold. The capillary vessels shrink. The blood recedes. The surface is cooled down. It grows pale. When the cold is removed, the vessels dilate again. The blood returns. The pendulum swings a little further back than the normal limit. Congestion takes place. The skin becomes red and hot; and this sudden afflux of blood is accompanied by pain.

If a large portion of the body is exposed to intense cold for some time, then it follows that a very large portion of the superficial blood must be driven in on the internal organs; and excessive congestion of all the large vessels, and the circulation in the viscera, takes place. This before long affects the brain so that death from cold takes place in a state of coma; stupor being produced by great congestion of the brain; and, if pushed far enough, by serous effusion. We are all familiar with the stories of those who, long exposed to cold, soon give up and desire to rest. They cease to suffer, after a little while, and sink to sleep. It is impossible to resist the inclination to slumber, they lie down and sleep, and die in a state of coma. That is the general effect on the internal organs when the whole surface is exposed.

Now if, on the other hand, the person has only one member exposed to cold, as a foot or a hand, and the cold is not intense enough and long enough to chill the whole body, then that portion which is directly exposed becomes as it is called "frozen." In that case the driving away of the blood from the surface continues so long that it does not return promptly; and alteration also is said to take place in the blood corpuscles themselves, so that they disintegrate. In this case the limb is incapable of repair; and although the part may be again exposed to warmth, and every effort made to produce a return of circulation, yet it sloughs; mortifies; spontaneous amputation takes place; and nature makes a cure by granulation, after the process of ulceration.

In imperfect freezings, where a part is chilled, it is capable of recovery. Where it is chilled so far that it is partially frozen, it is capable of recovery. The circulation returns, and with such violence that the danger subsequently is not in a want of return of the circulation, but in its too rapid return. The part becomes congested too rapidly by the returning blood; hence the familiar rule, after a part has been exposed to cold a long time, that it is not safe to warm it too rapidly; and, as it underwent its starvation of blood, so to speak, by the influence of cold slowly, so you must allow the current to come back slowly, if you want to avoid the next consequence, which is sure to ensue, if it comes back rapidly; and that consequence is intense congestion and inflammation of the part. The danger then of a universal freezing is death from coma and stupor. The danger from a very deep freezing is that the blood will never get back. The corpuscles are altered, and the part dies. The danger of a moderate freezing is that there may be a too rapid reaction and return of the blood. This acts in this way: The part is partially frozen; it is chilled and the blood driven away. The patient goes to the fire or exposes himself to heat. Intense pain and redness is produced; œdema; effusion of blood; loosening off of the cuticle; true inflammatory processes, which end in mortification, suppuration, ulceration, a line of demarcation, and slow repair afterwards.

These modes of injury indicate to us, of course, the modes of treatment; that, if the part is exposed to cold long, the most prudent course is to bring it back to warmth slowly. Apply ice-water, apply snow, and keep it away from heat. Subsequently, when it begins to recover, put on evaporating lotions containing substances like ether, or alcohol, or vinegar, and hold the reaction back. If it can be forced back and allowed to come on in an hour or two, instead of instantly, then the part frequently recovers with a partial inflammation. A partial inflammation causes death of the skin usually; and that gives rise to a very troublesome series of phenomena, but these are not dangerous. Moderate frost-bite if it has been successfully treated, always ends in some death of the skin. This is shown by blistering off of the surface, by the occurrence of subacute eczema, which very frequently follows. That is especially true of moderately frozen ears; in which the ear afterwards becomes the seat of eczematous inflammation for several weeks before it finally recovers.

The same is true of the nose and face and other exposed parts. So on the hands the skin of the fingers may peel off, and the nails may be loosened and some of them drop off, without absolutely freezing through the finger.

Exposure to cold; reaction to be delayed; that is the rule of treatment. Exposed to severe cold with tendency to torpor, the safety of the individual consists in being roused and shaken and driven about and forced to exert himself, to avoid the peril of death.

The spontaneous amputations and sloughings which come on after frost-bites affect most commonly the parts most distant from the centre of the body; the fingers and toes. We see it occasionally occur in this climate on land; and quite frequently in sailors who get the hands and feet frost-bitten by the combined action of the salt water and cold and exposure. These cases are frequently brought to us for treatment in the state of moist gangrene; rapid inflammation followed by gangrene. It is always of the moist variety. It is offensive, soft, sloughing, black, with a distinct line of demarcation forming. It is injudicious to interfere until the line of demarcation has fully formed. It is sometimes questionable whether it is worth while to interfere at all until spontaneous amputation has been pretty well performed; then we can judge whether

[1] These are unwritten lectures printed from the stenographer's reports. Verbal corrections are made in revision, but no rhetorical changes. They were delivered to the third and fourth classes as part of the regular course.

we can get along with the protruding stump, or whether it is necessary to make a primary amputation back of the injury, and get sound flaps. Whether we do this, depends a good deal on the extent of the frost-bite and the location of the part. For instance, it is extremely important to preserve a thumb as long as possible; and, if we can get off by shortening a little piece of bone and have it recover by granulation, it is better than to amputate high up.

So that in some of these cases it is wiser to wait until spontaneous amputation has taken place down to the bone, then to press back the granulations, scrape them back with the periosteum scraper, saw off the bones high up in the bleeding tissues, allow the granulations to come back over them, and allow the natural processes to go on. In that way we sometimes save important parts.

BURNS AND SCALDS.

Perhaps it has not occurred to you that these are the most frequently fatal and numerous accidents of civil life; and also this other point, which is worth remembering, that more than three-fourths of all the burns and scalds occur in young children. It is natural that it should be so. They are the most careless and most exposed. They go the most about stoves and lamps with their short and light clothing. They are unable to protect themselves after they are burnt. They are much more likely to have a serious burn than an adult because the first impulse of the child on being afire is to throw open the mouth and shriek, and inhale the flame or gas; which they frequently do with fatal result. The shock, also, to these young subjects when burnt is more severe and more fatal than it is with grown persons.

Scalds are not nearly so severe as burns. Burns are produced by fire; scalds by heated fluids, or steam. The species of burns produced, however, by the melting of substances which are denser than water, as for instance, molten lead or molten iron, anything of that kind, are more penetrating and more deep than the burns produced by simple fire, whether of wood or coal. The burns produced by heated metals are the deepest and most severe; the burns produced by fire are the next; the true scalds produced by fluids and gases are much less so. It is rare that a scald, so-called, goes far into the true skin and deeper tissues; but scalds mostly belong to the set of burns which are, what is termed, of the first class. The French authors have divided burns into six classes; but that is quite a needless minuteness of subdivision. Dividing them into three classes is quite sufficient; and practically only two of these are what we have much to do with.

The first is that which destroys the epidermis and does not penetrate the true skin.

The second destroys the epidermis and goes through the true skin, to a greater or less depth, into the cellular tissue or muscles.

The third class are those which go through the muscles, and go down and perhaps even char the bone.

A person, for example, who is epileptic or drunk, and who falls into the fire, or onto a hot stove, may lie unconscious, and have the limb deeply charred, or the third form of burn. The electric-current and the electric-wire burns are always of the third class, if it is in contact long enough with the tissues. The linemen who repair the wires and get burnt are occasionally brought to the hospital; are occasionally burned in the hand from catching hold of the wires; and the wire burns down through the mass of the adductor muscles and burns the bones themselves. That is quite a common accident from the electric current. A similar sort of burn is produced, by a different cause, among the workers in iron; in blasting furnaces, especially in the handling of long rails, that are drawn out of the furnaces in a bright red state, previous to being hammered into shape.

These burns almost invariably extend down to the bone; and so do the burns from the electric current. On the other hand, the patient who is scalded by hot water or steam has the epidermis peeled off, but the true skin is not affected.

The first class of burns does not scar; the second class of burns does; the third produces deep mutilations.

There are three or four things which seem to influence very much the prognosis with regard to a moderately severe burn. The first is the age of the patient. The next is the location of the burn, and the next is the extent of the burn, the extent more than the depth, and for this reason: the shock inflicted upon the system by a scald or a burn, is due to the rapid burning off of the sensitive nerves which supply the skin. The skin being the organ of touch, is enormously endowed with nerves. The filaments terminate there; and they are the organs of a very acute sensibility. A burn chars off the surface; inflicts shock and intense pain; and destroys their function. Now the more skin that is burned the greater the shock. The shock is greater over the larger extent of skin, in a burn of that kind, then in the deep burn which goes far into the tissues toward the bone. This is familiar in regard to the pain of surgical operations. The patient suffers intensely while the skin is being cut; much less when the muscles or deeper tissues are being divided. The shock of a burn depends upon the amount of skin involved; and therefore it is that the extent of a burn is of more consequence in the prognosis of the patient than the depth of it.

The location also is important. The most dangerous place to be burned is the front wall of the abdomen; the next, about the chest, and third, about the scalp. The limbs, much less danger.

The age of the patient you may reasonably suppose would make a good deal of difference in the prognosis, as it would in any class of injuries. Repair is more difficult in the old than in the young, as would naturally be supposed to be the case.

The effect of burning off the skin, or flaying the patient, so to speak, over a considerable surface, say a foot square or more, the effect of burning off so large a surface is certainly to inflict a most terrible shock to the nervous system from the pain produced by the sensitive nervous filaments, hundreds of which are destroyed, and also to produce very serious consequences on the internal organs of the body by the loss of the skin; the interruption of the functions of the skin as an excreting organ. A large burn produces in the internal organs precisely analogous changes to those produced by that acute inflammation of the skin with discoloration which we call scarlet fever. The subsequent consequences are very similar. In consequence of the loss of function of the skin, the power of perspiration and excretion is lost. The excreting organs in the interior of the body have then to do all this additional work. The consequence is congestion of the

kidneys to a very marked degree; congestion of the mucous membrane of the alimentary canal also in large burns; and in severe burns there will be very likely albuminuria, and ulcerations in the mucous membrane of the bowels. It, of course, would also be probable, and is the case, that in severe burns about the face and scalp the delicate structures inside the skull are liable to be congested, and meningitis, or serous effusion is liable to follow within the head itself. In addition to all this, if a burn happens to occur on the front of the abdomen where the walls are very thin, the immediate consequence is liable to be the occurrence of a mild degree of peritonitis produced by the irritation of the burn, with serous effusion or ascites inside the abdominal cavity; or, also, as is occasionally seen in large burns about the thorax, the pleural cavity becomes filled with fluid, and there is pleurisy under the seat of the burn. These facts must make it plain why it is that the location of the burn is of so much importance, and the extent of the burn is of so much importance. I do not care to add the depth of the burn as regards the prognosis and the symptoms. We agree about the depth in this way, that it is going to produce a serious and hard scar; but it is not so dangerous to life if a burn goes in several inches into the flesh, as if a superficial burn spreads over several feet of surface on the abdomen, or thorax, or upon the thigh.

There are three periods of danger in a burn. The first is immediate and is due to the shock, which occasionally produces fatal collapse. The next is due to the internal congestions and inflammations with fever, which are liable to follow immediately from the destruction of the skin; and the third period of danger is, if these have been passed through, the long-continued suppuration which follows the repair of the burnt surface; throwing the patient very much into the condition of hectic we see so often in the wasting suppuration of the joints and of the spine. Shock, then, first; then a period of inflammation; and then the period of exhausting suppuration.

The most marked and curious pathological result on the internal organs from the burn is the effect on certain portions of the mucous membrane of the alimentary canal; and, for some unknown reason, these troubles seem to expend themselves upon a certain tract, and that tract is almost invariably the duodenum, just below the pylorus, where circular, punched-out, depressed ulcerations, with hæmorrhage, are common. It is a thing to be looked out for. The statistics from autopsies show that ten to twelve per cent. have these ulcers; and when they occur they are the cause, occasionally, of a fatal termination of the case. The symptoms are not very marked. The diagnostic symptoms would be diarrhœa and bloody stools, and, perhaps also, vomiting, though not always; great pain or tenderness over the duodenal region are said not to occur to any very great extent. They are not marked symptoms. The nausea, diarrhœa, bloody stools are the signs of duodenal ulcer. They indicate to us, of course, that our treatment should be directed to do what we can to allay the excitability of the mucous membrane and to allow it to heal. We should try then, by simple treatment, to allay irritation by opium; to check diarrhœa by the same means; to give only those kinds of food which would leave the least possible sediment to pass over the irritated bowel; to choose that kind of food that would be digested by the stomach alone rather than in the duodenum; and by such treatment as this, endeavor to promote the healing of the ulcer. Perhaps, also, we may be able to prolong the patient's life, and give them time to heal, by rectal nutrition; by enemata and stimulants administered by the rectum.

Acute congestion of the kidneys followed by albuminuria will have to be treated as it would in other cases of commencing Bright's disease, or in other cases of congestion of the kidneys, by endeavoring to see as far as possible that the function of the skin, where it has not been destroyed, be kept up by promoting sweating; by warmth applied to the surface; and by giving diluent drinks; possibly, in bad cases, applying cups over the kidneys.

To recapitulate, we say when a patient is burned over a large surface he is in much greater danger than if burned deeply over a small surface. The three periods of danger are: first, immediately from shock and collapse; next, from inflammation and congestions internally; and finally, from suppuration.

What are the phenomena and appearances of a burn when first received? The pain, we all know, is intense, terrible, demoralizing. Directly after this follows a period of partial collapse; that is, if the burn is severe, the temperature of the body falls and the patient complains of cold; is chilly, shivers. After this has gone by the pain still continues; and a period of acute heat and inflammation gradually comes on, with restlessness and fever, and perhaps some signs of trouble inside the cavities of the body.

The shortest way to stop the pain of a moderate burn upon the surface is to get it covered in from the external air as speedily as possible, and restored to the normal temperature of the body, in other words, warmth and occlusion from the air are the means of checking the pain, and checking the shock. You will see why this must be so. The skin is burnt off. These terribly sensitive nerves are all exposed to a different temperature and they are in great pain from this exposure. There is no cure for it but to make some sort of an artificial skin, which shall cover them in from the air, and restore the temperature and keep them still. That is one treatment which is perhaps the earliest and most important of all. Nothing else does any good until this is done. But other methods of treatment also are important. It is important to give stimulants, and to give opium in the first stages of this pain and shock. Opium should be given gradually and cautiously, until the patient is quiet and easy; and stimulants freely in the period of collapse. Then the patient should be kept warm, and the burnt surface covered in from the air. This expresses the very simple rules of the earlier treatment of burns. In carrying them out some little judgment is necessary. Supposing, for instance, the patient is a child, who has fallen partially, that is the legs or arms or some part of the body, into boiling water. The clothing is on. The child is scalded through and through under the clothes; and the cuticle is all loosened and ready to peel off. If we can preserve that cuticle without peeling off, that is the best covering for the burn itself; and if that is stripped off, it is a great loss to the patient, increasing the suffering and preventing repair. In taking off the clothing we are apt to destroy all that cuticle; and hence comes the important rule that no clothing should be drawn off from a burned patient; but everything should be sacrificed without consideration as to value; slit down with sharp scissors, and

laid off so that the cuticle may be left upon the part. That is a very important point.

Next to that, the burn being seen, what shall be applied? Anything that will cover it in from the air. According to the degree of burn various substances may be used. If we accidentally get the hand for a moment upon a hot stove and withdraw it and find it reddened and vesicated over a small surface without the epidermis being actually denuded, that form of burn will be relieved, as regards pain, by sprinkling it over with common table salt. That is the common expedient of cooks. They are being burned here and there all the time. They wet the part and cover it instantly with salt, and the pain is relieved. A similar treatment, a very good one, is to tie the part up at once in dry cotton batting; and cover it in from the air in that way. That also relieves the pain to a very great degree.

For a person with burns so severe that the skin is peeled up, and a bubble of fluid is formed under it, the edge is denuded and serum is flowing out, in that case, the salt is not applicable; neither is the cotton batting. The best treatment for that is to dust the part over with flour, and allow a species of artificial scab to form over the part, which is then loosely bandaged. Any dry or innocuous powder, like flour, or powdered starch, or rice powder, is perfectly good to cover temporarily a burn. It shuts it in from the air, and makes a very good temporary dressing.

Again, another class of substances which exclude the air almost better than anything else are those which contain grease, or fat; any form which is free from salt, and which is not rancid will do for this purpose. The simplest and most applicable, usually, is olive oil. Castor oil is equally good. Castor oil is an irritant to the mucous membrane of the bowels, but not an irritant to a granulating surface. It is innocuous, smooth, thick, holds its place well. The fat of mutton is good. So are the simpler salves, as rose-water ointment, or benzoate of zinc ointment. These common remedies are generally used first; and nothing affords the relief that the rapid pouring on of some soft, soothing form of oil or grease does upon the surface. The pain is allayed very soon, and the part is protected from changes of temperature and from the irritation of the air. One of the common remedies used, which is very good and used largely, is what is called carron oil, made of boiled linseed oil and lime water. This makes a nice covering; soothing and cooling for a burn. The only objection is the odor; which in burns about the face is very disagreeable from the smell of the linseed oil. This can be overcome, to a certain degree, by the use of some simple perfume. In all burns about the parts distant from the nose it is as good as anything you can possibly put on.

An artificial cuticle made in any way is good for large and deep burns. Sometimes it is made by dissolving gum arabic in water with molasses; sometimes from various forms of gluten; anything which will form a scab on the surface in drying. It must be unirritating, and it must dry in the form of a scab. Now, this is an excellent application, makes the patient perfectly comfortable, and supplies the place of the lost skin. Unfortunately it is apt not to be permanent; and has occasionally to be renewed. The reason that it is not permanent is twofold: in the first place from the slight movements of the patient; and in the next place, every burn in this class of burns pours out serum or pus, and these lift up and burrow through the artificial cuticle, and it requires either to be taken off, or patched, occasionally.

So much for the earlier treatment of these burns. As for the later treatment, then we come to the period of suppuration, which is a peculiar and very tiresome one. The ulcerations of burns are peculiar in this way that the granulations are very large and florid and sensitive. It seems as if nature was making an extra effort to repair the burn, and instead of granulating quietly, as the ordinary ulcer on the leg will do, when not inflamed, this turns out masses of papillæ-like growths, which are made up of little masses of cells with a vessel and nerve in them; active granulations which occasionally become watery and œdematous and swollen, and bleed easily at the slightest touch, and are very sensitive. They are what we call in the ordinary ulcer exuberant granulations, or "proud flesh." This is the common form of healing of a burn; and it gives a great deal of trouble in taking care of it. It overgrows, so to speak, in repair. It rises beyond the level of the original parts. It is extremely sensitive, and it secretes a great deal of pus.

The oily applications, or the artificial cuticle, are generally the best things for this sort of case also, to allay the irritation. We should not, I think, look upon the pus which is developed upon these surfaces as an unmixed evil. It is a good covering; a poultice to the part; shields it from the air, and enables healing to take place beneath. You no doubt are familiar with the fact that healing by granulation goes on rapidly under the suppurating fluid, frequently; and although the suppuration is excessive and is to be cleansed well, it is a question whether cleansing it too often does not interfere with the process of healing. At this later stage, when suppuration is going on so rapidly; it is difficult to do much with the artificial cuticles; and we have to trust to what are called open dressings, and to change them. To change them often is productive to the patient of terrible shock and terrible suffering; and this is especially the case with children, who, of course, are unwilling to reason, cannot reason on the treatment which is being pursued, but dread the dressing as they do almost a sentence to be flogged; and scream and cry and exhaust themselves in anticipation of it, whenever it is about to take place; therefore it has been found, that frequently, in these burns it is not best to dress them too often; and instead of being kept in a state of most scrupulous cleanliness, they had better be dressed once in forty-eight hours, rather than in twenty-four, since the suffering is less, the shock is less, and the patient gets well quicker.

Nowadays repeated attempts, and sometimes successful ones, have been made to apply antiseptic methods to the subsequent treatment of burns; and so far as they can be used they are extremely useful, but the difficulty is in dressing often; in not allaying pain; and in destroying too much, sometimes, the covering of suppuration. The various gauzes are not very well adapted to apply to the granulating surfaces of a burn, because the fine web of the gauze catches on the smaller granulations and is washed off by suppuration; or, if it sticks, too great pain occurs in detaching it. On the whole, probably, these cases get along about as well with the treatment by the oily applications; but when we come to a much later date, when the acuteness of the burn has largely subsided, and when we have left a chronic indolent ulcer of large extent, no

very sensitive, as it is not in these later stages, which cannot heal, then the method of skin grafting, and especially the more modern method known as Thiersch's, by laying on thin slices of cuticle and protecting the whole by a water-proof covering of thin rubber, is extremely useful and extremely comfortable; and this treatment may be used in the latter stages of burns with great success.

When called to a burn, we are to allay pain, and give stimulants, at once. Be excessively careful how the clothing is got off. If a child is burned badly, put it to bed under a cradle; and apply the dressing you need. Apply warmth at once. Keep up the bodily temperature; for, strange as it may seem, while the first suffering is from the intense heat of the burn, the subsequent suffering is from collapse and coldness; and you want to restore the circulation and the natural warmth of the body. Give opium and stimulants and warmth. Get the clothing off carefully, and dress the burn temporarily, at any rate, with the first bland agent which is at hand, which will cover it in from the air. Subsequent dressings are to be made infrequently. Watch for complications of the brain, or chest, or abdomen; and treat them as well as you can; and, in the later stages, when the exhausting period of suppuration comes on, the patient must be treated precisely as in other cases of hectic; and tonics, stimulants, etc., used, to try to make up for the great waste of this suppurative process.

Unfortunately this is not all that is liable to follow. Unfortunately this exuberant granulation of the burn, this peculiar form of ulceration and reluctant healing, is followed by an unusual deposition in the scar of elastic or fibrous tissue, and by intense contractions; and that is the thing you must guard against all the time. The fingers, the elbow-joint, the knees, the neck, all are the seat of disastrous, contracting cicatrices. The same condition also affects burns about the orifices of the body; the mouth, or nose, or vagina; the mouth and the nose especially, which are frequently burned, subsequently heal in such a way that the mouth may be drawn down into a puckering ring where it is impossible to use the lips well, or the nose contract so that the patient cannot breathe through it with comfort. Also we must be on our guard lest contiguous surfaces contract adhesions and grow together. This is especially true of the fingers; which, if they happen to be badly scalded and lose their cuticle, the whole cuticle coming off like a glove, subsequently will heal with adhesions across, and tie the fingers together in a web, if we are not extremely careful. This is doubly true of a little child, where they are intolerant of treatment, and cannot understand what we are trying to do. It is of vast importance, in treating burns of the hands and of parts contiguous, that they should be kept strenuously open to prevent subsequent contractions and adhesions between the fingers. To prevent the contraction of parts, pulling up of the knee, etc., we have to have recourse to mechanical means, and apply splints to keep the parts well straightened, while healing is going on. On the hand, for instance, a dorsal splint and the fingers strapped back as firmly as possible, if there is danger of contraction; or an outside splint may be made of tin, to keep the arm straightened at the elbow.

If the skin is badly burned in the neck, the consequence is, first, pulling on the chin; then on the angles of the mouth; then on the eyes; so that, in some extreme cases, the patient has the chin drawn down nearly to the sternum; cannot close the mouth; cannot close the eyes; and is, of course, a horrible object, and very miserable for the rest of his life.

Here I would like to call your attention to a treatment, which has been successfully used in Vienna, and some other places, in cases of bad burns in the state of cicatrization, by hot water; keeping the part, if it is a limb, constantly immersed in hot water, kept at the temperature of the body. Baths have been contrived for this, with a little grating on which the patient can lie, and the part be nicely submerged; or else a little tank has been constructed in which the arm can lie, and the temperature be kept steady; and there is a little feeder of warm water to supply the waste by evaporation. No dressing is needed on the burn whatever, except the water. The burn heals in the water nicely; and it is claimed that it heals with a soft and supple scar. This treatment certainly is worth following out.

Provided we are left, after all our efforts, with distortions and cicatrices, what can be done? We have spoken of the means of skin grafting to enable a large ulcerated surface to heal. I think the method of Thiersch is the best. Now you must bear in mind that skin grafting by taking minute points as large as a grain of wheat from the epidermis has been used fifteen or twenty years, and is successful, but slow. Thiersch's method is more rapid. The cicatrices, however, after they have contracted, have to be treated in another way; and that is by section, and transplantation of flaps of skin, if possible, into the diseased surface. This sometimes can be done with great advantage in the palm; especially in the elbow; care being taken to cut out all the cicatrix, and match the new flap to skin which is sound. It is extremely difficult to make cicatricial tissue unite to sound skin without suppuration, and without giving way, and without a new ulceration; so that, if possible, a part must be selected where the whole scar is cut out, and a nice bed of sound skin left all around; and a large flap of sound skin taken and turned in, with a nutritive pedicle left. I would emphasize this point, that you must cut away all of the scar; and, also, that when you want to make a flap to turn in, you must make it a great deal larger than to fit the bare spot, for it shrinks to one-half the size.

Original Articles.

A CASE OF CALCULOUS PYELITIS, WITH COMPLETE SUPPRESSION OF URINE FOR SEVEN DAYS; RELIEVED BY OPERATION.[1]

BY A. T. CABOT, A.M., M.D.,
Surgeon to the Massachusetts General Hospital.

In cases of calculous pyelitis we may have suppression of urine brought about in several ways.

It may be induced by the presence and irritation of the calculi in the pelves of the kidneys, without any stoppage of the ureters. Kidneys which contain stones often undergo inflammatory changes which gradually disable them, and thus a diminution and final cessation of function may be brought about. Even when the pathological changes have not progressed very far, such kidneys may not be able to bear any extra work that is put upon them. In one calculous patient, I

[1] Read before the American Association of Genito-Urinary Surgeons.

have seen immediate suppression follow an operation for appendicitis, with moderate peritonitis. The kidneys showed interstitial changes which were not considerable, and yet their power for work had been so diminished that they were overcome by the ether, and by the increased elimination required by the absorption of inflammatory products from the wound and from the peritoneum. Although the calices were occupied by many stones in this case, there was no obstruction to the flow of the urine.

The way, however, in which calculi more commonly cause suppression, is by obstructing, or occluding the ureters. The condition under which this occurs, and the mechanism by which the suppression is induced may vary considerably, as follows:

(1) Both ureters may be simultaneously obstructed.

(2) One kidney having been previously destroyed or disabled, the ureter leading from the remaining kidney may be stopped.

(3) One ureter only being occluded, the irritation of the stone may by some inhibitory effect lead to a cessation of function in both kidneys.

There may be some doubt whether the case that I am about to report belongs in the first or second category. From the observations I was able to make, it seemed probable that the right kidney was more seriously affected than the left, that its ureter had been blocked for a longer time, and that finally it was the obstruction of the left ureter that caused the total suppression.

E. A. P., a strong man of sixty, was seen by me in consultation with Dr. G. K. Sabine of Brookline, Mass., on December 12, 1892.

His previous ailments had not made a great impression on him, and it was therefore difficult to be sure of his accuracy in his observation of his symptoms. His history was as follows:

He had always been subject to rheumatism. Seven years ago he had an attack of renal colic in the left kidney and passed two stones. He then was well until two years ago, when he had an attack of pain in the right side and passed a stone that was larger than the previous ones. The pain in this attack was thought to be due to rheumatism, and was not so severe as is usual in renal colic, so that its origin was not suspected until the stone was passed.

He was then free from trouble until November, 1892. Early in that month he had some twinges of pain in the right side, which were thought to be due to rheumatism. They passed off. Then a similar pain came in the left side on the 19th of November. He sent for Dr. Sabine on the following day. The pain in this attack was not severe, but was recognized as similar to that which he had had two years before, when he passed a stone. He gradually got better, and on December 5th he went to his business in town, but was seized while there with such an acute pain in the back that he went directly home again. This attack was so severe as to throw him into a profuse perspiration, and the pain was felt through the abdomen as well as in the back; and was distinctly referred to the left side.

On December 6th it was noticed that he was not passing any urine. The anuria continued through the 7th, 8th and 9th. On the latter day a catheter was passed, but only a drachm of turbid urine was obtained. From that time there was no water, up to the time that I saw him on the evening of December 12th.

At my examination he looked quiet and easy, not at all like a sick man; he had no nausea, no headache, no drowsiness, — in fact, he said he felt perfectly well. I made an examination, but could detect nothing, either in the abdominal or lumbar region. There was no tenderness anywhere, even to forcible pressure. I advised that he should take considerable water, should have a mustard poultice over the kidneys, and that sugar of milk should be administered freely through the night.

I saw him again the following day. He had passed no urine. Dr. Sabine thought he was a little more dull. His tongue was very dry, but he had no pain, except that occasioned by a slight flatulence. His pulse was 76 and of fair strength. He said that he had some relish for food, and no nausea. I again examined his abdomen, and thought there was a little more resistance in the right renal region than in the left. He also at one time thought that he felt a tenderness there during my examination. The rectal examination showed a prostate of moderate size, but nothing above the prostate, either of tenderness or hardness, in the region of the ureter.

The evidence seemed to show that the function of the kidneys had been interfered with by some mechanical obstruction, probably a stone, and an operation was advised for its removal.

In view of the total suppression of urine, accompanying the attack of pain in the left side, it was thought probable that the right kidney had previously been rendered useless, either by destruction of its secreting portion, or by blocking of its ureter, and that now a calculus had shut off the secretion of the remaining kidney. There was no evidence to indicate the seat of the calculus, and it was designed to open the abdomen by a median incision, to examine both kidneys and their ureters, and then to proceed, in the best way possible, to the correction of whatever condition was found. This plan was agreed to, and the patient having been removed to a private hospital, the operation was performed on the morning of December 14th, between seven and eight days after the establishment of complete anuria.

On the morning of the operation he had begun to show evidence of constitutional disturbance. The pulse and temperature had risen decidedly, and there was some commencing mental hebetude.

The operation was done under ether. The hand was introduced into the abdomen through a median incision between the umbilicus and pubes. The right kidney was felt to be enlarged to perhaps three times the normal size; its surface was irregular and divided into large lobes. Careful palpation of the ureter was difficult, on account of the abundance of fat in the post-peritoneal tissues, but no hardness suggesting a stone could be felt anywhere in that pelvis or ureter. The left kidney was of normal size, and its pelvis was not distended with fluid. The ureter on this side was followed down with great care, from the kidney to the bladder, but nothing like a stone could be detected. The bladder was contracted in the pelvis. The condition of things thus far confirmed the previous opinion, that the right kidney was previously disabled, and it also strengthened the belief that the stone which caused the final suppression was blocking the left kidney.

With the object of more carefully palpating this organ, which was deeply buried in fat, I made an ob-

lique incision in the left loin and uncovered that kidney. With one hand in the abdomen and the other in the wound in the loin, very careful search of the pelvis of the kidney and of the upper part of the ureter was possible, but the result was negative.

The operation was now abandoned, as there was no light by which further action could be guided, and the abdomen was closed; the wound in the loin being drained and partly closed. The opinion was expressed to the friends that possibly our thorough manipulation would be found to have dislodged the obstructing body, but that failing in this we had accomplished nothing.

The patient recovered from the ether well, and about three hours later, when I saw him, there was a slight escape of urine through the urethra, and on passing the catheter, thirty-seven ounces of light-colored urine were drawn. This flow continued, so that partly by the natural efforts and partly by catheter, two gallons of urine were obtained in the first twenty-four hours. In the second twenty-four hours, the amount fell to about five quarts, and after that there was a steady, gradual diminution, until the daily amount had reached the neighborhood of seventy ounces, at which it held.

Convalescence was satisfactory, and about a fortnight after the operation I washed out the bladder with a litholapaxy pump, obtaining a few grains of calcareous matter, thus completing the evidence that the ureter had been stopped by a calculus, which had been displaced by my manipulations.

In this case the condition of the left kidney is to me of especial interest. The fact that the pelvis was not distended with urine seems to show that the function of this organ was stopped at once by an inhibitory action due to the irritation of the calculus in that ureter, and was not due wholly to the obstruction to the flow of urine and to the back pressure exercised by this obstruction. This cessation of the secretion of urine in this kidney would explain the short duration of the pain when this ureter was blocked. Had the urine continued to be excreted, the internal pressure in the kidney would probably have caused a longer duration of pain, and it would have been much more severe in character.

A laparotomy for the determination of the site of a calculus in the ureter is no new thing, and its importance has been alluded to by me in an article upon "The Surgery of the Ureter," read before this Association, and published in the *American Journal of the Medical Sciences*, for January, 1892. In cases previously reported, this exploration succeeded in locating the position of the stone and in making its removal possible.

The case which I have reported illustrates another way in which this operation may be of use, by enabling us to assist the passage of the stone along the ureter, and thus to relieve the dangerous suppression caused by its presence there. The calcareous matter pumped from the bladder in my case, was so small in amount that, put together in the form of a consistent stone, it would not make a mass which one would expect to recognize by palpation through the walls of a ureter surrounded by thick layers of fat, as they were in this instance. The accidental efficacy of the kneading which was given to the kidney and ureter during my thorough examination of them, would suggest the importance of this massage being systematically carried out in a similar case, where a calculus could not be discovered.

Shortly after the occurrence of my case, I found in the *Annales des Maladies des Organes Genito-Urinaires* for January, 1892, the report of a case by M. Duffau-Lagarosse, which in many respects would seem to be very similar to the case which I have reported.

The patient, a man of fifty-nine, had not urinated for eight days. Three weeks before he had been seized, without appreciable cause, with a severe pain in the right lumbar region. This was accompanied by vomiting and scanty and bloody urine. After this there were fifteen days of comfort, and then the complete anuria appeared.

A calculus being suspected, an incision was made into the right kidney through the loin. Nothing was found, and the patient died the following day. At the autopsy the left kidney was found to be completely destroyed, while the right ureter was stopped by a calculus of the size of a grain of rice, which was lodged in the lower part of the canal.

The reporter draws two conclusions, first, that anuria induced by reflex action is a rarity; and, second, that the diagnosis of the seat of the calculus is very difficult, and indeed impossible.

In this case the small size of the calculus and its lodgement in the lower part of the canal, would probably have made its discovery difficult or impossible. Had the kidney continued to secrete urine behind so small a stone, its passage onward into the bladder would probably have been assured. In the absence of this pressure from behind, it would seem as if this were distinctly a case in which a median laparotomy and massage of the ureter from above downward might have accomplished the escape of the calculus and the recovery of the patient.

I cite this case simply to show that this condition is one which we must be on the lookout for.

The subsequent history of the case I have reported, is interesting in some particulars.

Not long after the patient had gone from the hospital, while he was moving about the house freely, he had another attack of discomfort in the left side of the abdomen, accompanied by a chill and high temperature. I saw him after this had persisted for a good many hours, and found him passing an abundant quantity of water, but still suffering from discomfort through the lower part of the abdomen on the left. Careful examination detected nothing abnormal in that region.

Remembering the experience of the previous attack, I made considerable massage through the abdominal wall, down along the course of the ureter and as deeply into the pelvis as I could reach. When I saw him a day or two later, he told me that from the time of my examination he was comparatively comfortable, and had no more of that seriously uncomfortable pain from that time. A week or two later a stone was passed that was decidedly larger than the calculous bits that were obtained by pumping after the operation. I have not seen the patient since, but have heard that he has had still another attack of pain, with again the passage of a stone.

The conclusions which I should draw from the experience gained in this case, and by a study of the literature that I have made, are:

(1) That in a calculous patient, or in a patient with a distinct attack of renal colic, the suppression of urine should be regarded as directly due to the stone,

and that in the majority of cases, both kidneys will be found to be disabled; for the cessation of the function of a healthy kidney, due to the irritation of a stone in the opposite ureter, must be very rare.

(2) These cases should be treated by operation as soon as it is evident that the function of the kidney has come to a standstill, as there is little chance of the stone being pushed along the ureter when the kidney is no longer excreting urine behind it.

(3) In the absence of any evidence as to the location of the calculus, the first step in such an operation should be a median laparotomy, with the hope of discovering the whereabouts of the calculus, in order to proceed intelligently for its removal.

(4) If by this examination no calculus can be found, so that further operative procedure cannot be decided upon, a steady massage of the pelves of the kidneys, and of the ureters, from above downward, should be practised, in the hope of dislodging or breaking up a small calculus, if such exists.

LONG-CONTINUED BLADDER DRAINAGE.[1]

BY PAUL THORNDIKE, M.D., BOSTON.

THE employment of absolute rest has long been recognized as an essential in the treatment of most forms of inflammation which affect the genito-urinary organs and especially the bladder, it being a comparatively common procedure to drain the latter organ for a few days either through the urethra or perineum, in order to obtain for it as complete a rest as possible under certain conditions. The long continuance of such drainage is less often carried out.

The writer offers these remarks on a few cases of long-continued drainage in the hope that they may serve as a basis for such a discussion as will demonstrate the views which different gentlemen present may hold on this subject.

There are unquestionably cases of prostatic and vesical disease of obstructive origin where the condition of the bladder demands drainage as a means of relief. In this way is provided rest from the bladder's irritable contractions and also from the pain and discomfort which catheterization frequently repeated for long periods of time, almost inevitably induces. Such cases are common enough, and the relief obtained by proper drainage is prompt and sufficient. Drainage may be afforded through a catheter tied into the bladder and removed only to be cleaned, or through a perineal wound, with or without a drainage-tube. In many cases the catheter drainage suffices, as was true in a case to which I will ask your attention in a moment; and in others the perineal outlet is preferable, because the operation is rendered necessary for diagnostic or therapeutic purposes aside from the question of drainage, or because the mental condition of the patient is such as to render it very difficult to keep a catheter of any sort in his urethra. It is the writer's belief that perineal drainage is a more effective way of keeping the bladder empty than drainage through the urethra can be, and should be the method chosen if the conditions are such as to warrant its use. That these methods of drainage may often be continued for a long time with the greatest advantage to the patient is unquestionably true, and that a permanent drainage of the bladder adds many years of comparative comfort to many lives is doubtless also true. The following case well illustrates the efficiency of long-continued drainage through a catheter in the urethra:

C. C., a man of sixty-six years, came under the care of Dr. Watson and myself with an obstructive prostatic hypertrophy of four years' standing. Had had an overflow bladder for months. In spite of the utmost care [he was put to bed and his bladder emptied with a soft catheter, a week being employed in completely emptying the organ] he developed a subacute cystitis, with coated tongue, high temperature, restlessness, anxiety, marked lassitude, etc. Did not improve. Became worse, and at the end of a week or ten days was critically ill. Specific gravity of urine 1,009. Soft rubber catheter tied into bladder and left in for three weeks, during which time patient was kept in bed and the catheter was removed only for a few moments at a time to be cleaned. On the second day improvement began. Temperature became normal, and at the end of two and a half weeks the urine which had been full of pus became clear, with specific gravity 1,017; and in three weeks patient was up and began a regular catheter life. Since then he has remained well. It is the writer's firm belief that this patient would have died if the continuous drainage had not been instituted.

Let me make brief mention of two other cases of Dr. Watson's and my own, where the drainage was through the perineum, and was kept up for a much longer time.

G. T., age sixty-seven years, had had an obstructive prostatic hypertrophy for seven or eight years, and an overflow bladder for two months before beginning to use a catheter. Had an attack of retention which he relieved for himself by the passage of a catheter. This was followed by loss of voluntary urination and a subacute cystitis. Specific gravity 1,009; trace of albumen; no casts found. For four years he did well with regular catheterization. Then began to have pains along course of urethra and frequent and painful micturition, which became unbearable; and patient's physical condition became very bad. Also had recurrent attacks of epididymitis. Operation, November, 1891. Perineal section for purposes of exploring and draining bladder, which was found coated with phosphatic deposit. This was curetted thoroughly and soft catheter tied in. For two and a half months it was left in continuously, being removed only for cleaning. Then it was provided with a stopcock, and has been worn constantly for the nineteen months since the operation. Two months after the operation the urine had cleared up; specific gravity was 1,015; and patient's physical condition was completely transformed. He now wears the tube without inconvenience, holds his urine for four hours comfortably, and says he feels ten years younger, and can work as well as ever.

In this case absolute relief of most distressing symptoms, including recurrent attacks of epididymitis, was attained. These symptoms had arisen during a well-conducted and regular use of the catheter. In this case a suprapubic prostatectomy would probably have proved fatal as the comparatively trivial operation which was performed was the cause of great shock.

A similar case was R., age sixty years, who had had prostatic symptoms for five years, and for three years had been obliged to use a catheter regularly. Soon after beginning its use he started up a urethritis, which

[1] Read at the Annual Meeting of the American Association of Genito-Urinary Surgeons at Harrogate, Tenn., June 14, 1893.

persisted up to time of operation. Then came a cystitis which gradually increased in severity, and was much aggravated by some anterior strictures which appeared (undoubtedly a result of the catheterization) and contracted down to 10 French. At the operation, the strictures were cut internally, a perineal section done, and catheter tied in. Moderate bilateral and middle lobed prostatic hypertrophy was found. Patient did well, and at once began to pick up. Continuous drainage was maintained for two months; and then, as in the other case, the urine was gradually allowed to collect in bladder until four-hours intervals were established. Symptoms at once ceased; urine cleared up; and now (eight months after operation) patient is perfectly comfortable, is wearing the perineal tube, and refuses to go back to catheterization or to have any radical operation done. He is about, in good health, and able to work comfortably.

The application of this idea of bladder drainage has been extended to include certain cases of suppurative pyelitis by some surgeons, notably Mr. Reginald Harrison, of London, who once said in a lecture:

"There are several advantages which might be urged in connection with what I would speak of as the tentative employment of perineal drainage in cases of kidney suppuration in the male, where from the symptoms and state of the urine, it was probable (*a*) that suppuration was going on in one or both kidneys, and (*b*) that the seat of suppuration evidently had a free access to the ureter: (1) Because perineal urethrotomy might be made to afford a means of continuous drainage, with or without a drainage-tube, at little or no risk; (2) because there is no fear of attacking the wrong kidney; (3) because it does not preclude the employment of further and more direct measures such as nephrotomy or nephrectomy, should these prove desirable."

He then goes on to report several cases, in one of which the drainage was kept up for six weeks or more, and made a good (and Mr. Harrison thinks a permanent) recovery. He concludes his remarks by saying that cases which are not likely to be remedied by such a proceeding are those of calculous pyelitis and extraneous abscesses opening into the kidney or ureter and discharging their contents into the bladder. In one case which he treated in this way the pus proved to come from a psoas abscess which had opened into the kidney. In this instance the patient received great comfort from the drainage, although, of course, no permanent good came of it. The urine remained acid in spite of the large amounts of pus which it contained, and the patient was spared much pain in voiding it.

The only case of the sort which comes within the writer's experience was one on the service of Dr. F. S. Watson, at the Boston City Hospital. The patient had perineal drainage for three months for what was thought to be a cystitis of six months' duration. The case proved to be one of calculous pyelitis, and is now rapidly convalescing from a successful nephro-lithotomy. Even in this case three months' perineal drainage gave great relief to the symptoms of pain, irritability, etc., which were not entirely reflex.

Leaving out of consideration cases of calculous pyelitis as manifestly unfit for such a method of treatment, there remain to us cases of renal suppuration of tubercular origin, and these probably form a large percentage of all cases of renal suppuration; those from extension upward of a purulent process; and those of suppurative pyelitis from other causes than those mentioned, chief among which, perhaps, are the cases due to crystalline elements in the urine.

The advisability of operating upon the tubercular cases is very doubtful, still the field is large enough to make a consideration of this method of treatment a very interesting one. In order to be at all in sympathy with it, one must agree with Mr. Harrison that such perineal drainage is more efficacious than catheter drainage through the urethra, and that the operation for such perineal drainage is simple, easily performed, and not attended with serious after-effects.

Mr. Harrison has also cured some very stubborn cases of chronic urethral discharge, which had baffled all previous attempts, by performing a perineal section, and thereby at once keeping the urethra very clean and very quiet.

Mr. Hall, in the London *Lancet* for February 19, 1870 (Vol. I, page 262), reports some cases in which he cured long-standing perineal fistulæ in this way.

It would seem that certain cases of spinal disease complicated with a chronic cystitis, as so many of them are, might also be made far more comfortable by a permanent drainage through the perineum.

In conclusion, the writer wishes to make no claim for this procedure as in any way a well-defined routine measure of treatment. It is undoubtedly a method of value in some cases; and he would suggest that among such cases may very properly be:

(1) Some cases of vesical and prostatic disease where the operation is done to palliate symptoms, when a radical operation is inadvisable or impossible.

(2) Some cases of suppurating pyelitis, not of calculous origin. Most tubercular cases are also probably outside the field of this treatment. Here the drainage would be tried as a palliative measure before resorting to severer ones, such as a nephrotomy.

(3) Some cases of obstinate urinary fistulæ.

(4) An occasional chronic urethritis.

(5) Cases of chronic cystitis, due to disease of the spinal cord.

The writer has not spoken of suprapubic drainage of the bladder in cases such as are instanced in this paper, because he has had no personal experience with that form of drainage in such cases.

SUBPHRENIC ABSCESS, WITH SPECIAL REFERENCE TO THOSE CASES WHICH SIMULATE PYO-PNEUMOTHORAX.[1]

BY A. LAWRENCE MASON, M.D.,
Associate Professor of Clinical Medicine in Harvard University; Visiting Physician, Boston City Hospital.

(Continued from No. 8, page 192.)

SUBPHRENIC ABSCESS FROM PERFORATION OF THE VERMIFORM APPENDIX.

That perforation of the vermiform appendix may give rise to abscess which extends to the arch of the diaphragm was observed by Duchek,[16] Bamberger,[17] Bernheim,[18] and other more recent writers, who have called attention to the interesting auscultatory features which air-containing abscesses in this region may pre-

[1] Read before the Association of American Physicians, Washington, D. C., May, 1893.
[16] Prager Vierteljahrschrift, 1853.
[17] Verhandl. der phys. med. Gesellschaft zu Würzburg, 1858, s. 123.
[18] Virchow-Hirsch Jahresbericht, 1874.

sent. Cossy [19] applies the term "false pneumothorax" (faux pneumothorax) to these misleading signs, and relates two cases of perforated appendix which presented this condition. In one case, on section, the anterior surface of the pericardium, when percussed, resounded like a drum, suggesting pneumo-pericardium, but this sound was found to be transmitted from the air-containing abscess beneath.

Similar cases of subphrenic abscesses of the right side with amphoric signs in the thorax are recorded by Jaffé [20] (Hamburg) and Herrlich,[21] who both operated unsuccessfully by thoracotomy. Large air-containing abscesses were found between the diaphragm and the right lobe of the liver and there was fistulous communication with the perforated appendix.

Starke [22] records a case of the same kind in which spontaneous cure followed the evacuation of the abscess through the bronchi.

Pätsch [23] effected a cure in the case of a boy, eighteen years old, who was seized four days before admission to the hospital with signs of peritonitis in the right iliac region. Two weeks later pain developed about the sixth and seventh ribs and there were signs of fluid encroaching upon the thoracic cavity without cough or expectoration. Exploration discovered foul pus, which soon after found exit through the bronchi. Incision above the seventh rib in the anterior axillary line resulted in early recovery.

Taylor [24] relates a case in which a large abscess was found between the liver and diaphragm caused by extension from a sloughing appendix.

Fitz [25] in his paper on "Perforating Inflammation of the Vermiform Appendix," read at the first meeting of this Association, says: "The extension of a secondary paratyphlitis may cause perforation of the diaphragm with a consecutive pleurisy or pericarditis." Such a case was then mentioned by Dr. W. W. Johnston, with the remark that such an untoward event would be rare at the present time, owing to early operative interference.

Leyden,[26] however, has lately recorded a case of "pyo-pneumothorax subphrenicus" in which an abscess containing more than two litres of pus had formed above the right lobe of the liver, having extended to this region through retro-cœcal suppuration, the result of perforative appendicitis. Intercostal drainage failed to cure, and after death it was found that the abscess had gone through the left wing of the diaphragm also. The hole in the appendix had closed.

PERISPLENIC ABSCESS.

Suppuration in the splenic region, except as the result of traumatism or pyæmia is rare. But Zuber,[27] in an article on perisplenic suppuration, reports cases of abscess in this region, the result of circumscribed peritonitis. They were bounded by the spleen, stomach, colon and diaphragm, and were said to have been caused by an "infectious splenitis" attributed to the poison of intermittent fever. Cases by Hilton Fagge, Grisolles, Villemin and others are quoted.

[19] Sur le Pneumothorax engendré par des Gaz provenant du Tube digestif. Archives gén de Med., 1879, ii, 526.
[20] Deutsche med. Wochenschrift, April 16 and 23, 1881.
[21] Loc. cit., 1886, xii, s. 139.
[22] Charité Annalen, 1882, s. 629.
[23] Loc. cit., 1882, s. 300.
[24] Guy's Hospital Reports, vol. xix.
[25] Transactions of Association of American Physicians, vol. i, 1886.
[26] Berliner klinische Wochenschrift, November 14, 1892.
[27] C. Zuber: Des collection spurulentes péri-spléniques. Revue de Médecine, Paris, 1882, vol. ii, p. 928.

Wardell [28] refers also to the influence of malaria in causing latent splenic inflammation which may result in abscess below the diaphragm and secondary pleurisy or empyema. The same accidents may happen which result from abscesses in this region from other causes. The lung, stomach, or colon may be perforated.

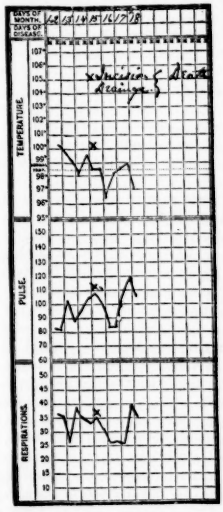
Jaffé [29] tapped a subphrenic abscess at the angle of the scapula and removed bloody, offensive pus. After death the spleen was found to have been ruptured by an injury.

Herrlich [30] reports a case in which the diaphragm was pushed up to the third rib by a large metastatic abscess in the splenic region. The signs of pleuritic effusion were present and pus was obtained by aspiration. The patient died before thoracotomy could be performed and the pleura was found to be free.

Councilman [31] reports the post-mortem examination of a case of perisplenic abscess with perforation into the splenic flexure of the colon, followed by thrombosis of the splenic vein and multiple abscesses of the liver, probably the result of an injury.

SUBPHRENIC ABSCESS FROM PERINEPHRITIC INFLAMMATION.

While lumbar tumor usually characterizes perinephritic abscesses, they may develop round the upper part of the kidney and are then contiguous to the diaphragm. By extension they may penetrate the lung or pleura. It was in this class of cases that the late Dr. Henry Ingersoll Bowditch, in a timely article on "Perinephritic Abscess," [32] urged the danger of chest complications and the importance of early and radical operation. He reported several cases which had come under his care. Roberts,[33] in a paper on "Perinephritic Abscess," also calls attention to the importance of chest symptoms in such cases. But they form a class by themselves, as a rule, with special symptoms, and I will not allude to them further except by the report of a case which illustrates the above-mentioned dangers.

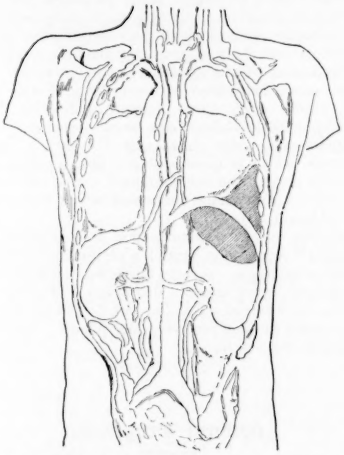


CASE VI.

CASE VI (Mason). *Perinephritic abscess involving the diaphragm and pleura.* — A man, aged thirty-three years, entered the hospital with the history of pain in the right hypochondrium for a year, but he

[28] Contributions to Pathology and the Practice of Medicine, by John Richard Wardell, M.D., Edin., p. 72.
[29] Ueber subphrenische Abscesse: Deutsche med. Wochenschrift, April 16 and 23, 1881.
[30] Deutsche med. Wochenschrift, 1886, s. 139.
[31] Johns Hopkins Hospital Bulletin, No. 10, January, 1891.
[32] Medical and Surgical Reports of the Boston City Hospital, vol. i, 1870.
[33] Perinephritic Abscess: American Journal of the Medical Sciences, April, 1883.

had worked until the last week. He was emaciated and cachectic and had bulbous fingers. There were signs of fluid below the right scapula and tenderness over the lower intercostal spaces in the axillary line, with retraction of the same spaces in front, as if the lung were adherent. Liver and spleen enlarged and easily felt below the ribs. Urine, albuminous; large and small hyaline and granular casts. Ten ounces of foul-smelling pus were withdrawn by aspiration at the eighth space, posterior axillary line. The proximity to the diaphragm, the adherent lung, and the pain, gave rise to the opinion that there was a latent subphrenic abscess with secondary empyema. The enlarged liver and spleen and the urinary changes suggested amyloid degeneration. An incision was made in the ninth space behind, and the cavity was irrigated, but the patient soon died from septicæmic exhaustion. Cough, expectoration and râles, chills, sweating and vomiting had been noticeably absent. The temperature was subnormal.



Case VI. — Perinephritic abscess (tubercular); secondary empyema; back view.

Autopsy: At autopsy the right pleural surfaces were adherent throughout, except at the lowest posterior part, where there was an abscess cavity. Below the diaphragm and surrounding the upper part of the kidney was another abscess, the diaphragm being necrotic. Amyloid spleen and kidneys. Tubercular deposits in lungs and liver.

GALL-STONES.

Gall-stones show little tendency to excite suppurative processes in their vicinity. Fenwick cites five cases in which they had caused abscesses which burst into the duodenum, but such instances are rare and their course is more acute than that of the abscesses caused by perforating ulcers.

SUBPHRENIC ABSCESS FROM CANCER.

Cancer is an infrequent source of sub-diaphragmatic abscess, but such cases are referred to by Andral,[34] Habershon,[35] and Fenwick.[36] Neusser[37] relates the following: A woman, aged thirty-six, had a large cavity filled with pus and air between the liver and diaphragm on the right side, communicating with a deeply ulcerated cancer of the pylorus which had been diagnosticated during life. There was perforation of the diaphragm and gangrene of the lung.

LITERATURE.

When we turn to the literature of this subject we find that it is fragmentary, but it is no less interesting to watch the progress of auscultatory science and physical observation than the advance of surgical art in dealing with these difficult cases.

In 1829, Wright[38] records two cases of "pneumohepatic" abscess as occurring at the Baltimore Almshouse. In one there was recovery after the spontaneous discharge of air and pus between the eleventh and twelfth ribs near the spine. Pain, fulness and threatened suppuration at the epigastrium were noted, and were attributed to abscess of the left side of the liver, but the diagnosis was uncertain. In the other case there was a double abscess, containing air, in the lung and the liver, with communication through the diaphragm.

Graves and Stokes[39] record a similar case in which an abscess resting on the convex surface of the liver had involved the lower lobe of the right lung. Incision between the eighth and ninth ribs gave exit to a pint of sanious pus. Through the opening air escaped with force on coughing. The autopsy showed that the diaphragm had been perforated, but it was not clear whether the pulmonary abscess or the one below the diaphragm was primary.

The recognition of the relation between perforating gastric ulcer and the signs resembling pneumothorax has been attributed to Barlow and Wilks, who first reported such a case in 1845, under the title, "Perforation of the Stomach, with Obscure Thoracic Symptoms."[40]

Case. — A female, aged thirty-nine years, was admitted to Guy's Hospital, October 26, 1844. History of gastric ulcer for eighteen months. Two days before admission she had an attack of sudden dyspnœa and intense pain. The epigastrium was prominent, very resonant, and tender. There were signs of pleurisy at the left base, with also amphoric respiration, metallic tinkling, "Punch's voice," and succussion splash. Over the præcordia was a rubbing sound, synchronous with the heart-beats and heard when the patient held her breath. This was thought to denote pericarditis. Death took place twenty days after entrance. "The stethoscopic signs, particularly the amphoric respiration, coupled with the severe symptoms, satisfactorily proved to many that the case was one of pneumothorax. Dr. Barlow was opposed to this opinion and persisted in referring the amphoric and metallic sounds to the stomach, and mentioned a case in which a perforation of the stomach had communicated with a large peritoneal abscess." This proved to be the case, and, although there was a pleural effusion, no communication existed between the chest and the abscess below the diaphragm. There was no pericarditis.

Case. — Williams,[41] in 1845, recorded the case of a man, forty years old, who, after dysentery, had an abscess between the right lobe of the liver and the diaphragm, which

[34] Clinique Méd. d'Andral, t. ii, p. 64.

[35] On the Alimentary Canal.
[36] Loc. cit.
[37] Wiener med. Wochenschrift, 1884, No. 44.
[38] American Journal of the Medical Sciences, 1829, vol. iv, p. 353.
[39] Dublin Hospital Reports, 1830, vol. v.
[40] London Medical Gazette, 1845, vol. i, No. 5, p. 13.
[41] Loc. cit., December, 1845.

was later incised at the right hypochondrium. After death it was found that the metallic tinkling which had been observed had been produced by a communication between the abscess and the transverse colon.

Wintrich [42] says that when he was clinical assistant at Würzburg a mistaken diagnosis was made in the case of a woman in whom there was a large abscess cavity filled with gas, débris of food, and pus, connected with a perforating ulcer of the stomach. Pneumothorax was diagnosticated from the presence of metallic tinkling and percussion note, amphoric breathing, dyspnœa, cough and expectoration.

Habershon,[43] Bouchaud,[44] Hilton Fagge,[45] Taylor,[46] and others have recorded a variety of cases of this description. Fagge's sixteen cases of "Abscess of the Upper Abdomen" from various causes are especially interesting.

But the subject attracted little general attention until 1880, when Leyden [47] published his well-known article entitled "Pyo-pneumothorax Subphrenicus," a designation which is evidently open to objection, but which explains itself clinically. From Leyden's clinic, through Herrlich,[48] Pfuhl,[49] Scheurlen,[50] and other writers comes a large part of our information on this subject. Leyden's original article related to four cases of air-containing abscess below the diaphragm. After having, in the first case, diagnosticated pyo-pneumothorax in a twenty-three-year-old female, he found, to his surprise, post-mortem, that the signs were produced by an abscess above the liver, which communicated with a perforating ulcer of the duodenum. After this experience he correctly diagnosticated three similar cases, one duodenal and two gastric perforations. All proved fatal in spite of surgical treatment, carried out in one case by Langenbeck. In another case six exploratory aspirations failed to find the abscess, which, after death, was seen to originate in the vicinity of a closed gastric ulcer, which the author regarded as its undoubted cause.

Leyden's diagnostic points were in part:

(1) Previous abdominal symptoms, and absence of signs of thoracic disease in the early part of the illness.

(2) Little displacement of the heart or bulging of interspaces.

(3) Normal respiration under the clavicle, with abrupt transition lower down to the metallic and amphoric sounds which occur in pneumothorax.

But it is to be observed that the heart is often displaced by the coincident pleural effusion, as in Case V, and abrupt change in percussion tone is not always found. Moreover, the lung often adheres to the diaphragm and parietes, with partial loss of contractility, so that, although there may be a diminution in the breath sounds and vocal fremitus, they are not entirely abolished as in general pneumothorax. Cough and bronchial discharge aid us in diagnosticating a circumscribed pyo-pneumothorax.

From Leyden's clinic and other sources, chiefly German, Scheurlen [51] collected 34 cases, including two of his own, in one of which a cure resulted after resection of the ninth left rib in the anterior axillary line. The cause was perforating gastric ulcer. Half the cases were diagnosticated during life and 15 were operated on. Six recovered, but in one only was the cause a perforating ulcer. The earliest cure was recorded by Pätsch in the case of subphrenic abscess from appendicitis quoted above. The seat of the abscess was on the right side in 19 cases; on the left in 15. The causes were gastric ulcer, 11; duodenal ulcer, 4; perforation of vermiform appendix, 6; trauma, 3; hepatic or peri-hepatic abscess, 2; peri-splenic inflammation, 2; cancer of pylorus, 1; suppurating echinococcus cyst, 1; a swallowed hairpin, 1; and in 3 the cause was not determined. Pleural effusion existed in 16 cases; in 6 there was perforation of the lung through the diaphragm; in 2 pyo-pneumothorax, and in several others the deceptive signs which simulate that condition.

Scheurlen regards the absence of the usual causes of empyema, namely, tuberculosis, pneumonia, and the puerperal state (to which might be added the acute fevers), as important in aiding a diagnosis by exclusion. As valuable physical signs, he mentions the friction sound of dry pleurisy near the diaphragm, and the disappearance of the semilunar space in the left side, which occurs in pleurisy with very large effusion only. But without exploratory puncture, Scheurlen thinks that subphrenic abscess can be suspected only, not diagnosticated. He states that the pus is always ichorous, which is questionable. The withdrawal of pleuritic serum from one interspace, and of pus from a lower level is a valuable indication, which was also observed in our Case III.

A more recent communication from Leyden and Renvers [52] reports the cure of a perigastric abscess by puncture drainage. A large trocar was passed through the seventh space and the diaphragm. Through the canula, by means of a Nélaton catheter, the cavity was washed out without involving the pleura. Recovery ensued in one month.

(To be continued.)

[42] Krankheiten der Pleura. Virchow's Handbuch, B. v, Abth. ii, p. 358.
[43] Loc. cit. and Guy's Hospital Reports, 1885, iii, 1.
[44] Bulletin de la Société anat. de Paris, 1862.
[45] Guy's Hospital Reports, 3d series, xix, p. 320.
[46] Loc. cit.
[47] Zeitschrift für klin. Med., 1880, Band ii, p. 320.
[48] Loc. cit.
[49] Berliner klin. Wochenschrift, 1887, No. 5.
[50] Charité Annalen, 1889, xiv.
[51] Loc. cit., 1889.

Medical Progress.

RECENT PROGRESS IN THORACIC DISEASE.

BY GEORGE G. SEARS, M.D.

PULSUS BIJEMINUS AND DEATH FROM DIGITALIS.[1]

HUCHARD found that digitalis in many persons leads to a perversion of the cardiac rhythm, which has received the name of pulsus bijeminus. Two revolutions of the heart follow each other rapidly: the first is usually the stronger and is easily felt in the pulse, while the second may be so weak as to be scarcely, if at all, indicated there. This peculiarity is also found in many arterial cardiac lesions from their tendency to produce cardiac dilatation; but it is often overlooked, either because it is transitory or because it is mistaken for an irregularity. Each pair of beats is separated by a more or less well-marked interval, which prolongs the duration of the systole and thus increases the amount of blood which flows into the ventricles and distends their weakened walls. Then

[1] Centrblt. f. d. ges. Ther., 1892, p. 575.

[52] Berliner klin. Wochenschrift, November 14, 1892.

two systoles follow each other quickly in order to thoroughly empty the over-full ventricle. As digitalis increases the period of diastole, it favors the production of this abnormal rhythm, and in these cases must therefore be withheld, as it may lead to rapid, or even sudden, death, with symptoms of cardiac dilatation and cyanosis.

THE GRAPHIC METHOD APPLIED TO THE DIAGNOSIS OF OBSCURE ANEURISMS.[2]

Apropos of Dr. Richardson's proposition to employ intra-thoracic auscultation in the diagnosis of obscure conditions within the chest, Fenwick and Overend say that in 1890 they made a series of experiments in this direction. Beside practising auscultation by means of the œsophageal tube, they attached a Marey's tambour in the hope of obtaining graphic records of the movements communicated to various parts of the œsophagus, with especial reference to the diagnosis of obscure aneurisms. This was tried in several cases with considerable success; but in their final case, though every precaution had been taken, and the signs of aneurism were at the time obscure, the straining and retching caused by the tube brought on an immediate hæmorrhage, which frightened the patient and occasioned them the gravest misgivings. Although it is rational in device, easy of performance and undoubtedly serviceable in diagnosis, the extra risk of life, in their opinion, cannot compensate for its probable disadvantages, no matter how fine or flexible the tube may be. They therefore discourage its use.

MEDIASTINAL PLEURISY.[3]

Velimirowitsch bases his thesis on the study of five well-marked cases, all of which occurred in children, two coming under his own observation. He realizes the difficulty of drawing an adequate picture of the disease from the meagre material at his command, but makes the attempt owing to the lack of previous endeavors in this direction. A frequent cause of the affection is tuberculosis. It is more often situated on the left than on the right side of the thorax and is most common in children. The symptoms are often so similar to pericarditis that during life they are frequently mistaken, one for the other. An important point in diagnosis is the character of the onset, which is usually accompanied by severe pain between the nipple and sternum and a sense of great oppression. In effusions in the left side there may be bulging of the precordial region and obliteration of the intercostal depressions, with a tympanitic percussion note below the clavicle, dulness over the sternum and feeble vesicular breathing in the anterior portions of the lung. Displacement of the heart may also be looked for, the sounds being modified and feeble and distantly heard on the right side. In effusions on the right side, the symptoms are the same, but cardiac displacement does not occur. In some cases the liver is pushed downward. The prognosis is not good, but depends on the underlying disease. Treatment is practically confined to puncture.

MULTILOCULAR PLEURISY.[4]

Rudolph says that adhesions between the visceral and costal layers of the pleura are so commonly found resulting from many different causes, that it is probable that multilocular pleurisies are not such very rare occurrences. The cavities are usually two in number, but may be more; at times they communicate with each other, at others they are entirely separate. In the latter case the fluid in the different cavities may vary greatly in character, one, for example, containing serum, another pus. Though Jaccoud was able to recognize two forms of this condition, in one of which all the classical symptoms of effusion are present, except for a more or less crescentic-shaped zone extending from spine to sternum, where vocal fremitus and the respiratory murmur are still preserved, and another in which, with flatness on percussion and displacement of neighboring organs, vocal fremitus, marked bronchophony and bronchial breathing are all present. Rudolph, in four typical cases, had no suspicion of the real condition in one case till the autopsy, and in the other three, till after the first pocket had been tapped. If, after thoracentesis, when done in the back, the signs of pleural effusion still remain anteriorly, in the right side above the limit of hepatic dulness, or on the left, over the semilunar space, there can be little doubt of a second effusion. Another point in the diagnosis of this condition is the withdrawal of less fluid than the amount of the dulness, etc., would lead one to expect, while the persistence of fever after the evacuation of an empyema is a very suspicious symptom, provided other causes can be ruled out.

The prognosis depends on the character of the primary disease: cases in which the contents of the cavities are of different characters are almost always the result of serious lung diseases, tuberculosis, bronchiectasis or carcinoma.

ACCIDENTS OF NERVOUS ORIGIN CONSECUTIVE TO THORACENTESIS AND EMPYEMA.[5]

Jeanselme has collected forty-five cases of this sort, in which the nervous manifestations varied greatly; syncope, convulsions, hysterical and epileptic attacks, monoplegia and hemiplegia, delirium, strabismus, disturbance of vision as well as vaso-motor and trophic disturbances, being among the number. As premonitory symptoms he has found inequality of the pupils, the dilatation being present on the side corresponding to the empyema, hyperæsthesia of the pleural fistula and pleural hæmorrhage, but almost always the onset is sudden and stormy. They do not occur spontaneously in the course of the disease, but invariably after operative interference, rarely after a simple operation, most commonly after washing out a pyothorax, but the nature of the irrigating fluid is unimportant. It rarely occurs in cases of serous effusion, but three cases out of forty-three, in which the character of the fluid is mentioned, being of this kind. The prognosis is not good, as over half the cases proved fatal.

Individual cases may be traced to an embolic, cardiac, toxic, uræmic, epileptic, traumatic or hysterical origin, but underlying them all is a state of poor nutrition, cachexia or similar conditions in which nervous crises develop at the first opportunity, the central region which is responsible for these manifestations being probably the medulla. The treatment should be supporting and stimulating. As a prophylactic measure too much fluid (1,000 to 1,200 g.) should not be withdrawn and care should be taken in washing out the pleura and in the use of the irrigator.

[2] British Medical Journal, February 11, 1893.
[3] Thèse de Paris, 1892; Centrblt. f. Klin. Med., No. 23, 1893.
[4] Centrblt. f. Klin. Med., June 17, 1893.
[5] Centrblt. f. Klin. Med., No. 23, 1893.

ON THE TREATMENT OF BRONCHIECTASIS.[6]

Stewart says that while the generally accepted theory is, that bronchial dilatations are produced by the contraction of fibrous tissue in the lungs, that process does not explain many, and indeed, the most typical, examples of the disease. For bronchiectasis is often present when there is no cirrhosis and in not a few cases the fibroid change follows upon it as a secondary consequence. Further observations have confirmed the views which he expressed twenty-six years ago that an atrophic process in the walls of the bronchial tubes affords the real explanation, and that, given such an atrophy, the pressure of the air in the respiratory tract leads to dilatation of the tubes, while the consequent accumulation and decomposition of the mucus produce further changes characteristic of the disease. He has therefore endeavored to adopt treatment which would meet these conditions. Very little, however, can be done to prevent the occurrence of atrophy, nor, except by keeping down cough so far as that was warrantable, to interfere with the pressure conditions which tend to dilate the weakened walls. The constant aim has been, therefore, to prevent the decomposition of the sputum and its consequences. Turpentine, creasote, carbolic acid, salol and other antiseptics by the stomach, as well as sprays and vapors of various kinds have all been sedulously tried, with on the whole a very limited and temporary advantage. In one case during the past winter he had used an intratracheal injection of menthol (10 parts), guiacol (2 parts), and olive oil (88 parts), a drachm being injected into the trachea twice daily. The injections were given regularly for about a month and then gradually less frequently, with the result that in a week the fetor of the breath and sputum had entirely gone. The temperature speedily fell to normal, the general symptoms disappeared, the weight increased, the appetite returned and the digestive process became established, while the pulmonary signs had been favorably modified. Had this treatment failed Stewart proposed to try operative interference and gives details of a case under his care several years ago in which such treatment was adopted with good result.

(To be continued.)

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

EIGHTH ANNUAL MEETING, AT WASHINGTON, D. C., MAY 30, 31 AND JUNE 1, 1893.

(Continued from No. 8, p. 202.)

SECOND DAY. — MORNING SESSION.

DISCUSSION ON MYXŒDEMA.

A PAPER by DR. F. P. KINNICUTT, of New York, was read by DR. W. G. THOMPSON.

This was followed by a paper by DR. JAMES J. PUTNAM, of Boston, who reported two cases of myxœdema successfully treated by thyroid preparations of different kinds.

The first case was that of a lady in middle life who had had the disease for upwards of twelve years in a pronounced and typical form. The treatment by injection was begun in July, and the improvement began to show itself in two weeks. She is now practically well, though still anæmic and delicate; and from having previously been bald, she has a dense growth of hair. The history of the case furnished some facts with regard to the morbid symptoms occurring during the thyroid treatment, and these were considered also with reference to other cases. Their cause is not so much the thyroid extract itself as it is the rapidly changing condition of the heart and blood-vessels, and perhaps the rapid absorption of substances from the tissues.

The second case was that of a lady in whom myxœdema appeared about the time of the menopause; and it is especially interesting on account of a family tendency to the disease, the rapidity of the improvement, and the fact that, for several years before, the thyroid had been enlarged (as it is still) and tachycardia had been present.

A third case was important on account of a history of severe headaches associated with atrophy of both optic nerves. There was some doubt as to the diagnosis of this case, and the discussion of it brought up the question of the relation of myxœdema to acromegalia, two cases of which are now under the writer's observation. Both of them have been treated by thyroids, and appear to have improved.

The relation of myxœdema to Graves's disease was also discussed; and the view was maintained that we have not at present sufficient grounds for asserting any very close relationship between these affections. It is not probable that Graves's disease is due to enlargement of the thyroids in the same sense that myxœdema is due to an atrophy of that organ. Certain forms of obesity, perhaps, stand nearer to myxœdema, and the latter disease in the modified form is perhaps more common among elderly people than has been supposed.

The results of partial thyroidectomy, which appears to have been so successful in relieving the symptoms of Graves's disease, form an argument of value in favor of the thyroidal origin of that affection; but the question can by no means be decided positively on that side. The evidence that Graves's disease is essentially a cachexia due to disordered tissue nutrition, in the same sense as with myxœdema, is not strong, and the theory that the symptoms are due to excessive or vitiated thyroid secretion, though important, still lacks proof. The occasionally rapid onset of Graves's disease under excitement or nervous shock is not easily explained in that way, though not positive disproof of the theory. The truth probably is, that Graves's disease is closely related to the cardiac-regulatory and vaso-motor functions of the thyroid, and very little to its trophic functions. It is difficult to define the condition of the thyroid necessary to produce myxœdema, etc. Sometimes its functions seem to be only temporarily inhibited. It is probably not true, however, that a small part of the gland is functionally equivalent to the whole.

The recent observations respecting the pathological anatomy of the myxœdematous condition were cited, and the conflicting evidence regarding the supposed compensatory enlargement of the hypophysis cerebri after thyroidectomy, and regarding the function of the hypophysis. There is, perhaps, an analogy between the cachexia thyreopriva and eunuchism after castration.

[6] British Medical Journal, June 3, 1893.

Another paper was read by Dr. M. Allen Starr, of New York.

Dr. Starr's paper consisted of a report of three cases successfully treated with the thyroid extract and the discussion of the mental condition present in all of his cases.

Case I. Female, forty-six years of age, from Newcastle-on-Tyne, England. Developed myxœdema in April, 1882. Various forms of treatment failed to give her any relief. First seen in Dr. Starr's clinic, College of Physicians and Surgeons, New York, February, 1892. Was put upon glycerine extract of thyroid gland in March, 1893. Was given six drops of the glycerine extract, three times a day, increasing the dose one drop daily. Improvement began within ten days, and has been progressive and continuous. This improvement has affected both body and mind, and in every respect the change for the better is marvellous. The œdema has practically vanished. Her mental condition has improved to even greater extent than her bodily state. She is able to walk several miles a day when formerly it exhausted her to walk 800 feet. She is free from pain and sleeps well. Her temperature has steadily risen under treatment from 97°, and is now constantly normal. The dose of extract was steadily increased until she was taking ten drops three times a day, at which point it caused a feeling of exhaustion. The pulse was found to be over 100 and the temperature 99.5°. The dose was reduced to eight drops, and subsequently maintained between eight and nine drops three times a day for the past month. This is the equivalent of a half a gland daily.

Case II. Female, twenty-two, single. The onset of the disease was so gradual that it is impossible to say when the present symptoms first developed; but it is certain that in 1889 her appearance was noticed to be peculiar, the face being swollen and waxy in its pallor. On January 6, 1893, put upon thyroid extract, five drops three times a day, increased gradually up to nine drops three times a day. The improvement began three weeks after the beginning of the treatment. On May 1st, her condition had markedly changed. The œdema had disappeared from the face, the body and the extremities, the tongue and lips alone being then affected. The skin was soft, and no longer scaly and dry; had some color; well-nourished, good digestion; and mental condition apparently normal. Walks three miles daily, and is fairly well. Is now taking thirty drops daily of the thyroid extract, which is equivalent to half a gland.

Case III. Female, aged forty-six, married. Suffering from myxœdema since 1880. Put upon thyroid extract four months ago, ten drops three times a day. The reaction was so intense as to give rise to much alarm. After an intermission of a week, treatment was begun in five-drop doses twice daily, and then gradually increased to ten drops three times a day. This dose she can take without manifest discomfort. After four months' treatment her appearance is wholly different from that of the past six years. She no longer has the appearance of undue obesity. The skin, which was formerly dry, rough and scaly, is now soft and smooth; and she says that she is beginning to perspire naturally, a thing she has not done for ten years. There is a perceptible new growth of hair on the head and in the arm-pits. The supra-clavicular swellings, which were very noticeable, have gone away entirely. Her speech is different in character; her facial expression has markedly changed for the better; her appetite and digestion are good. Urine increased in amount. Her mental depression has passed away.

Dr. Starr, after a consideration of the mental symptoms observed in his patients, concludes that these mental symptoms must be due to certain physical changes in the brain, probably similar in nature to those visible in the body, especially when the relief of the mental symptoms by the treatment with the thyroid extract is taken into account.

Dr. W. G. Thompson, of New York, then gave the following history of a case of myxœdema:

The patient is a female, forty-four years of age. Symptoms of œdema commenced twelve years ago. Admitted to Presbyterian Hospital, April 5, 1893. Had the characteristic symptoms of the disease. After four days under observation without treatment, she was given daily doses of five minims of glycerine extract of the sheep's thyroid, prepared by Dr. Geo. W. Crary. No reaction was at first observed, and the dose was increased by one minim with each dose until a week ago the patient was taking twenty minims three times a day. Patient now under treatment fifty days. Temperature has fluctuated three degrees, ranging between 97° and 100°, most of the time being subnormal. At first the daily fluctuations amounted to 2.5° or 3°, but of late they have been only 1°. The hair has continued to fall out, but the extensive lamellar desquamation has ceased; and the skin over the hands and arms has become more elastic, softer and much less dry. Ten days after the treatment was begun the swelling of the face, especially about the eyes, had decidedly diminished, and the lips and tongue became slightly thinner. The patient's mental condition improved considerably. The feeble circulation has not improved, but the patient sits up daily and moves about the wards. There has been a slight increase in the daily production of urea. The extract, as prepared by Dr. Crary, represents twenty-four grains of gland tissue to the drachm of glycerine. Strict surgical cleanliness is observed in all the steps of the process. Boric acid solution is the only antiseptic used, heat sterilization being employed. The glycerine is Schering's twice distilled, sterilized before being used. The glands are cut up separately, those diseased thrown out. After standing four days the extract is ready. After two months it seems to lose something essential.

Dr. F. C. Shattuck wished to mention, rather than report, three cases of myxœdema, two in private, one in consulting practice.

Upwards of a year ago a single lady of twenty-nine was brought to him with symptoms dating back a number of years, but more aggravated within a few months. Her appearance had so changed that people did not recognize her. Her mental condition was one of rather undue elation. Early in May, 1892, he injected weekly a glycerine extract of a sheep's thyroid in three doses. The injections were kept up for about three months. The skin improved very much; but from undue elation she passed into a condition of suicidal melancholia, which has continued more or less up to the present time. About two months ago she began to take Parke, Davis & Co's dessicated thyroid extract by the mouth, fifteen grains twice a day, and continued it for five weeks. It was then stopped on account of pains in the legs, and afterwards resumed. She is essentially no better, although she has been fairly subjected to the treatment.

The second case is that of a gentleman of sixty-nine, seen first two and one-half months ago, in an early stage of myxœdema. He was put upon dessicated thyroid, fifteen grains twice a day in capsules. Before many days he began to complain of pains in his legs, and then in his chest near the cardiac region. The dose was diminished to seven and one-half grains twice daily. The myxœdematous symptoms rapidly abated; but the treatment soon had to be stopped on account of the very severe nocturnal paroxysms of pain like that of angina, demanding morphia hypodermically, several nights as much as two grains in half-grain doses. This was accompanied by great tenderness just outside the left nipple, and inability to lie on the left side. As the pain came the pulse would rise to 120, the normal rate being about 70. After three weeks' intermission the extract was resumed in the dose of one grain every second day, and he is now getting one grain daily. His whole appearance has undergone a marked change, and he feels better than for two years. Both he and his wife now date his symptoms back farther than they did at first.

The third case, which was seen in consultation, is of many years' standing, although she was seen but very recently. Very marked improvement has taken place; and her friends note a great change in her appearance, which was highly suggestive of Bright's disease. She has had much palpitation since she took the extract, seven grains three times a week.

The especial points to which Dr. Shattuck called attention were the failure of the treatment thus far in a case which seems undoubtedly one of myxœdema and the toxic symptoms noted more or less in all three, namely, pain in the legs, palpitation and severe angina. We are dealing with a powerful agent, and should be very careful until we are more familiar with its doses than we are at present. Among the many points which experience will enlighten us upon is the relation of the dosage to the duration or intensity of the disease. The descriptions of myxœdema, as laid down in the books, apply to old and very marked cases. As we learn to recognize the early stages of the affection, we shall find that cases are pretty common.

DR. WM. H. WELCH spoke of the results that Dr. Halsted had obtained from extirpation of the thyroid gland in the dog. A singular alteration in the structure of the gland, which had been referred to in the papers on myxœdema as an "hypertrophy" of the gland, had been found. The change is so complete an alteration of the structure of the gland that it is doubtful if any one would, in an advanced degree of the change, recognize sections of the organ under the microscope as thyroid gland at all. The appearance of follicles has disappeared, and the lumen of the follicle is filled up with papillary growths from the walls of the follicle. There is complete disappearance of the colloid substance from the lumen of the gland, and the low cubical epithelium has become high cylindrical epithelium, and more granular than normal. This change occurs as the result of interference of various kinds with the gland, such as a very severe operative interference in the neighborhood of the gland or a simple handling of the nerves or a ligating of the nerves in the neighborhood or disturbing the tissues around the gland. The same change occurred in the glands of dogs which had been operated upon at a distance from the neck, as for intestinal suture and experimental peritonitis. In a series of something over one hundred dogs examined at the pound in Baltimore, a small percentage had this enlargement and alteration in the structure of the gland. All this shows that the thyroid gland has important functions, but still obscure.

Dr. Halsted has discovered the possibility of removing a great many times the weight of the normal thyroid. He takes away one thyroid gland and part of the other, but not enough to kill the animal. The part which remains behind hypertrophies and after a certain time is bisected. The operation is repeated again and again and a great many times the normal weight is taken away and absolutely no symptoms appear. During all this time the remaining portion of the thyroid is altered in the manner before described. Anything that bears upon these changes in the thyroid may prove hereafter of importance in the understanding of the function of the gland.

DR. J. J. PUTNAM, referring to the remarks of Dr. Welch, said that he had recently had a patient with exophthalmic goitre, operated upon by Dr. Warren, who removed about two-thirds of the gland. The part removed was examined by Dr. Councilman, and was similar in structure to the hypertrophied glands described by Dr. Welch. If only a very small portion of such a diseased gland is left, it seems to be sufficient to prevent the peculiar cachexia from coming on.

Parke, Davis & Co., and others who have been concerned in securing the thyroids from sheep, have found large numbers of them diseased. About one-third of those examined at the Brighton Abattoir were found diseased, and were rejected.

The changes in myxœdema are often in such form as to strongly suggest nephritis. In two instances known to Dr. Putnam the diagnosis of nephritis was made. It is a subject for investigation, whether some of the obese elderly people whom we see with more or less of this œdematous condition are not subjects of myxœdema, and could be improved by thyroid treatment.

DR. M. ALLEN STARR, of New York, called attention to the necessity of varying the doses of the drug somewhat in accordance with the reaction of the patient. Different individuals are apparently differently susceptible to the thyroid extract. In one of his cases, owing to a misunderstanding between physician and nurse, the dose was run up to twenty-two drops of the glycerine extract three times a day, which is equivalent to two and one-fourth glands per day. This was not followed by any apparent ill effect. In Dr. Thompson's case no effect at all was seen until the dose was run up to eighteen drops of the extract three times a day. It is better to gradually increase the dose until pretty large doses are given. Recently, in the discussion in Edinburgh, on myxœdema, from out of a large number of cases reported (nearly seventy), there were but two cases of failure to relieve the patient by the use of thyroid extract.

Recent Literature.

The Anatomy and Surgical Treatment of Hernia. By HENRY O. MARCY, A.M., M.D., LL.D., etc. Published by D. Appleton and Company, New York. 421 pages, illustrated by 8 colored plates from Bougery, 66 full-page illustrations and 37 cuts.

This is an elaborate volume. Also one which on account of the skill and art of the publisher will al-

ways attract attention. It seems at first sight from its size, its attractive binding, its elegantly colored plates, its large pages filled with quotations, extracts, statistical tables and diagrams a monument of erudition. It has evidently been the aim of the author to contribute a work which shall be a "classic" in surgical literature. Its title describes accurately its contents. It tells of the anatomy and surgical treatment of hernia.

A close examination of the volume, however, results in a certain amount of disappointment. The expectation of the reader that he has found a complete treatise on hernia is not realized. There is much information relating to its descriptive and pathological anatomy. There is an exhaustive collection of bibliographical quotations relating to the history and development of its operative treatment, to the methods for its permanent relief and to statistical results, an elaborate chapter on the history and use of animal tendons in surgery, and finally, a detailed description of the operative method devised and practised by the writer of the work.

One finds a splendidly published volume containing a large amount of useful information; but also, unfortunately, such a mass of heterogeneous material and data compiled from discussions of surgical societies or personal correspondence that the reader is exhausted in his search for results or conclusions. There is a lack of appreciation of the relative importance of subjects. There is at times an account of abridged quotations and incorrect impression given of the true method or opinion of the original writer. There has been collected a huge mass of material both historical and recent. The task must have been a very laborious one. The compilation, the arrangement, the conclusions of this extended study and investigation, however, except so far as the writer's individual method and clinical experience is concerned, shows an inability to handle this mountain of data; or a lack of care in its preparation. These elements render the volume unsatisfactory for practical reference and arouse distrust as to the correctness of the quotations and statistics. The method of describing plates is tedious and requires an unnecessary expenditure o time.

The book is valuable in that it will furnish to a careful reader much valuable information relating to the descriptive and pathological anatomy of hernia. It will give him an interesting account of the ancient history of hernia. It will furnish a full bibliography of the literature describing its operative treatment. It gives an elaborate detailed description of the especial operation for the radical treatment of hernia devised and advocated by Dr. Marcy. The evidence now at hand as to the value of this operation comes chiefly from the publications of its originator. According to his reports it has given satisfactory results. In seventy-eight cases four recurrences. In two of the latter a second operation was ultimately successful.

The book is one which will never become popular as a volume for "practical" reference. It contains, however, much that is of interest, but in a form that requires some familiarity with its text to be available.

Lessons in Physical Diagnosis. By ALFRED LOOMIS, M.D., LL.D. Tenth Edition, revised and enlarged. New York: William Wood & Co. 1893.

The ten editions of this excellent book well attest its continued popularity. Some parts of the present edition have been rewritten, and a new lesson on "Clinical Microscopy" has been added.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, AUGUST 31, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

THE MUTUAL INTEREST OF THE MEDICAL PROFESSION AND INSURANCE COMPANIES IN THE PROLONGATION OF LIFE.

THE above is the title of a paper read before the American Medical Association in June of the present year by Prof. Chas. Denison, of Denver, Col. Since that date it has been somewhat widely circulated as a printed leaflet.

In brief the essay presents a dual proposition:

First, that the medical profession shall adopt a systematic and uniform method of recording the symptoms, physical signs and progress of diseases of the chest, both for the study of such disease and the co-laboration of physicians in selecting a proper climate for the treatment. A special form for such record called a "Diagnosis Chart" and advice to supplement the same by spirometrical and manometrical observations, were presented with the essay, and two ingenious instruments for general and particularly for life-insurance examiners' use, devised by Dr. Denison, were described.

Second, that life-insurance companies being interested in the prolongation of life, as well as in the early and correct diagnosis of diseases of the chest, shall employ physicians especially qualified, to whom insured persons having such disease, shall be referred at the companies' expense, for examination and advice.

Further, that the companies upon report from these referees, shall look after the personal welfare of those requiring aid, and shall, if desired, loan them money to assist them in going to favorable climates.

The value of the first part of the dual proposition is evident, and especially so, since if generally adopted, physicians who examine for life insurance would be the better qualified for their duties.

Aside from the use of the spirometer and manometer, which, while impressive as office ornaments, are apt after years of service to stand disused and forgotten, what is the prospect of the adoption of the suggestion in connection with life insurance?

We must accept human nature as the past has shown it. The present only repeats the past; and the probability of bringing about the general use of charts and instruments of precision, is hardly less remote than in the years immediately following the discoveries of Lænnec. The great bulk of mankind do not care to be accurate, and the average medical practitioner is no exception.

That physicians who examine for life insurance — about eighty per cent. of whom live in thinly-settled districts, and who although the best attainable, are far from being highly educated — can be relied upon for a refined diagnosis in a case of a man not seriously ill, is at least problematical. Many of these men started out in life impressed with the importance of auscultation and percussion, but have gradually come to give less and less time to all but those acutely ill.

The experience of a medical director for more than twenty years shows that busy and skilful practitioners will not take the time to fill out a complicated chart, either for their patients or a company.

Those examiners interested equally by desire for the fee and a desire to please the agent (and these are unfortunately many), cannot be made to do it; and the country practitioner too often cannot do it correctly, if he would.

This statement is not meant as a reflection upon these physicians. They are able to detect disease. They are qualified to pronounce judgment upon a man's physical soundness; and their experience, backed by honesty and integrity of purpose, is a safeguard to the companies they represent. Yet they do not feel called upon to state in accurate terms the particular phase of disease they find; and if they were, would hesitate to record it for the possible criticism of jealous rivals.

The basis of life insurance is the known experience of mortality in the community at large; and the fair and honest opinion of a medical man conversant with the personal history of the men examined, re-enforced by the judgment of the medical directors of a company, would, of itself, be a selection which would keep that company's mortality within the tables, whether the examiner were an accurate diagnostician or not. Unfortunately, however, such fair and honest opinion is not always available. The personal interest of an applicant and the pecuniary interest of the solicitor, introduce such elements of danger that the most skilled physicians (being also the most independent) are the most desired as examiners.

The higher education of all physicians in the diagnosis of incipient disease is a matter of grave importance to life companies; but elaboration of detail and minuteness of record are fortunately not necessary concomitants. *Experientia docet;* and instead of elaboration, the larger life companies have gradually reduced the size of their applications, eliminated much that was once deemed essential, and simplified the questions to be answered.

The one object of inquiry, the pivotal point around which all examination centres, is not what special form of disease the applicant has, but has he any at all? In other words, Is he sound? If not, a wise company will take no chances. All doubts on the subject are, however, weighed and investigated by the medical directors, the integrity of the examiner being as important a factor as his ability, in the final decision.

That we may not be misunderstood we would sum up our observations on the first part of the proposition as follows:

(1) Life companies appreciate the importance of employing the most skilful physicians.

(2) The use of charts and instruments of precision is eminently desirable; and while experience in this direction hardly warrants the hope of their general adoption, the limited number who may adopt them will be considered by companies as preferable examiners.

(3) Nevertheless companies will still be obliged to employ many who are only relatively the best.

(4) The character of the business makes it necessary, and the broad, general principles of life insurance make it safe, to accept examinations by many whose experience and honesty of purpose are more pronounced than their skill in diagnosis of chest diseases.

The second part of the proposition, namely, that life companies can properly take measures to prolong the life of their insured who have developed disease of the lungs, presented as new, will undoubtedly have the charm of novelty to many, and is worthy of consideration.

We must not mistake the true purpose of life insurance. It is not, as many suppose, a business for the acquiring of money, in the sense applied to ordinary mercantile affairs. True life insurance is a business of wide philanthropy; and while there are stock companies who find it possible to combine business enterprise and profit with this philanthropy, most companies are mutual, and all excess above the expense of conducting the business and the reserve held for the policy-holder is returned to each member as a dividend. The insurance is properly not for the man insured, but for his family in case of his untimely death. True, various forms of policies are now issued, under demand for investment and the pressure of sharp competition, where the personal interest of the insured is contingent; but the great bulk of insurance is still what it was originally designed to be, a true philanthropy.

Any company so successfully managed that it can return large dividends is deservedly popular. It is returning money not consumed by great mortality nor bad investment.

Competition among companies is strained to the utmost. To attain pre-eminence no scheme is overlooked; no care, no study neglected; and it is probably true that no medical officer of any large company has failed to consider over and over again the probability of profit in prolonging the life of the insured. From the standpoint of economy, from that of extension of benefits and from that of mere advertisement, the subject has been discussed.

The matter of prolonging the life of consumptives has been especially considered, but deemed, in view of the inadequacy of all remedial measures, beyond the province of a life company.

Aside from the business complications and perplexities which will be dwelt upon later, the point strongly urged by Dr. Denison, that money could be advantageously loaned to aid the diseased in going to a proper climate, is already met by some companies, certainly by the Mutual Benefit of Newark, N. J., which will loan liberally upon policies that have acquired a reserve value, to any holder, whether sick or well, at the ordinary rate of interest.

Another point, not only of popular but also of professional error, which the growth of life insurance has corrected, relates to the rate of mortality from consumption.

When the experience of the first thirty years of the Mutual Life (quoted by Dr. Denison) was published, this disease was a source of grave apprehension, but it has long ceased to be so. The application of principles of hereditary susceptibility, the modern doctrine of contagion, the improvement in the general standard of physicians, and the extreme care exercised in the selection of examiners have reduced the mortality from consumption to such a degree, that it bears in the mortality record but a moderate ratio to other diseases. Apoplexy, paralysis, Bright's disease, heart disease, and even the preventable zymotic diseases, are regarded with at least equal anxiety.

After what has been said, it will readily be seen that if a company should undertake to care for its consumptive policy-holders, a flood of inquiries would be made as to why the man suffering from nervous prostration, from heart disease, from the sequelæ of typhoid fever, the results of la grippe, and even the sufferer from business embarrassment to the verge of suicide, should not receive like assistance. The universal complaint would be "unfair discrimination."

If in reply, it could be demonstrated that the other policy-holders were in reality the gainers by such discrimination, all would be well; and we may therefore ask, Would it pay either them or the company? In other words, Is the scheme practicable?

Assume for a moment that it is to be tried: There is first the selection of qualified men as referees, whose opinion is to be relied upon. Over the wide area of the United States alone this would be a task involving much valuable time, travel and expense. There must be enough to be available in every State, and they must be men whom other physicians could look upon as authority.

As they are to be paid by the company, they could not refuse to examine either those hopelessly ill, nor those who having catarrh or bronchitis or debility or dyspepsia, fear they are becoming consumptive. The latter would be numerous, for it is a fact of observation, that the man with an annoying bronchitis or a protracted catarrh thinks he has consumption, while the man actually in the incipient stage is quite sure he has not, and finds many a physician who will assure him that his is but a trifling ailment.

Out of 100,000 policy-holders there would be ten per cent. (10,000), or at a very low estimate five per cent. (5,000), who would seek such free examination from an expert; and at $10, there would be an outlay of $50,000 annually. The correspondence resulting, would require the employment of a competent supervisor and at least one clerk to look after beneficiaries, referees, claims, appeals, reports and advances of money, an outlay of from $6,000 to $10,000 more.

Here then is a total, at a low estimate, of $60,000 annually, not including the expense of travel to settle disputes, the notifying of 100,000 policy-holders, circulars to the newly insured, and the many minor sources of outlay attending a special philantrophy.

As an offset we will assume that the life of seventy-five per cent. of consumptive policy-holders would be prolonged three years — a percentage almost absurd, since not more than twenty per cent. are usually prolonged at all by climate, travel, or the advantages offered to those with money; but place the percentage high, seventy-five.

The percentage who would be finally cured would be too small to enter into the computation. Ten to twelve per cent. of the deaths in a well-managed company is now about the rate from consumption. With 100,000 policy-holders a long established company loses only 150 annually from this disease. These are chiefly in early or middle life. Seventy-five per cent. of this number is 112.

Take, then, the average amount of policies and a high average of premium, and only about sixty per cent. of the first year's outlay would be received by the company in the three years, and of this a very considerable amount would be returned as dividend. This, it must be remembered, is assuming such liberal estimate as experience by no means justifies; and disparity of return for outlay is yet very great.

Setting aside, then, the question whether it would pay (not profit but expenses), a very important question is, Has a company the moral right after insuring a man's life for the benefit of his wife and children, even if the policy is a self and not a wife's policy, to compromise with the insured for his own benefit beyond offering a fair portion of the reserve value as a loan? Is it wise with reference to self-policies, whether life or endowment, to introduce a purely speculative element?

Of course, a man holding a self-policy can usually obtain a surrender value in cash, and the moral feature of the transaction rests with himself; but a systematic attempt to force a surrender or to assume to discount payment upon the chance of fatal issue of disease, whether under the guise of philanthropy or for the profit of the company is quite another matter. Quite certainly it would not be profitable.

While the broadening of the field of life insurance for the general good in the direction discussed can hardly be deemed practicable, there is one direction in

which it may be, that, so far as we are aware, has not been laid before the public; and this is in influencing sanitary legislation.

The advances of modern times made in barring out epidemics from our seaboard, in preventing the pollution of the water-supply of cities, in closing wells and dairies from which the germs of typhoid fever are disseminated, have undoubtedly spared thousands of lives.

We need not specify, perhaps, any particular instance, although it would be easy to do so, since no one now disputes the value of legalized sanitary supervision; but the opposition of politicians, and the obstacles constantly interposed to proper legislation by unscrupulous or ignorant partisans, still hamper and counteract the progress of sanitary science.

Life companies could well afford to have in every legislature one or more competent men alive to the importance of preserving life; and the saving of only one insured person annually from preventable disease would more than cover the cost, and prove of benefit to the whole community.

RELATIONS OF DYSPEPSIA TO PULMONARY TUBERCULOSIS.

AT the recent French Congress for the Study of Tuberculosis recently held in Paris, one of the subjects discussed was that of the relationship of dyspepsia to pulmonary tuberculosis.

Marfan has maintained in his thesis that the digestive disturbances of the phthisical bear the relation not of cause but of effect; in other words, they are but one of the manifestations of the tuberculosis. Often the dyspepsia masks the tuberculosis. Marfan believes the initial dyspepsia to be caused by a "humoral state."

According to Hayem, whose paper attracted much notice, the gastritis of the phthisical is a common gastritis due to the ordinary causes of stomach inflammations. It is generally accompanied with retardation in the evacuation of the stomach and consequently with dilatation. It sometimes precedes for several years the appearance of the tuberculosis, and is only exaggerated at the onset of the phthisis in patients who take excitant drugs or who adopt a regimen not adapted to the state of their stomachs.

The causes of the gastric affections of the phthisical are those of ordinary gastric affections, to wit, the abuse of tobacco and alcohol, errors in diet, etc. It is a mixed gastritis, parenchymatous and interstitial.

In one case, Hayem found, at the autopsy, a general amyloid condition of the entire mucosa; in another, a necrosis due to a thrombosis; exceptionally, he has met with a tuberculous ulcer.

A gastropathy of uncertain source begins early in life; it entails a state of general debility, and at a certain moment pulmonary tuberculosis bursts forth. The physician then institutes an active treatment based on super-alimentation and the abuse of medicaments.

Under the influence of this particular regimen continued for months, there supervene the symptoms of violent gastric catarrh, in other words, the "initial gastric syndrome" of Marfan. It is simply the exaggeration of a gastropathy which had existed for many years, sometimes fifteen or twenty years before the appearance of the pulmonary accidents. Under a suitable dietary regimen and the suppression of medicines these gastric symptoms vanish.

When the attending physician discards the administration of irritant medicines and prescribes nourishing, easily-digested food, he will even in febrile cases see the condition of the stomach improve.

The tuberculosis at the onset, then, does not make the state of the digestive organs evidently worse. On the contrary, there are few diseases which so rarely affect the stomach. One is often astonished at the digestive capacity of the phthisical, who will eat more nutritious food than a well man.

In concluding, Hayem said that with the exception of rare lesions, ulcerations, amyloid degenerations, etc., the gastritis of the phthisical is of the common kind.

It is sometimes latent, and is not diagnosticated before the appearance of the tuberculosis. It should, nevertheless, be a subject of preoccupation by the medical attendant, for this gastritis may end in grave gastropathies, and open the door to pulmonary tuberculosis. In hospital patients it would seem that chronic alcoholism is a frequent cause of gastritis.

One of the best means of warding off pulmonary tuberculosis in the predisposed consists in treating the gastropathy.

The proper medication addressed to the digestive tube may perhaps in some subjects arrest tuberculosis at the onset.

MEDICAL NOTES.

A NEW MEDICAL SCHOOL IN BOSTON. — The trustees of Tufts College have decided to establish a medical department. The new school will be located in Boston, and will be opened next October, to men and women on the same footing. Albert Nott, M.D. is the Dean, and Charles P. Thayer, M.D. the Secretary.

WESTERN RESERVE MEDICAL SCHOOL. — Professor Gad, of Berlin, has been appointed professor of physiology in the medical school of the Western Reserve University, Ohio. The required school term each year hereafter will be eight months.

THE JOHNS HOPKINS MEDICAL SCHOOL. — Johns Hopkins University will open its new medical department next October. The regular course in this school is to be four years, and women are to be admitted on the same footing as men, and on the same conditions; a collegiate degree or evidence of an equivalent education.

A SUICIDAL EPIDEMIC. — An unusually large number of suicides has been reported this summer, both in

this country and in Europe. London, Paris and Hungary are especially afflicted. Many of the cases have had no discoverable reasons for their occurrence. The usual conditions of long-continued, dark, wet weather said to cause an increase of suicides have certainly not been present this year.

A GIFT FROM PROFESSOR CZERNY. — Dr. Czerny has sent a contribution of twenty dollars to the Gross Monument Committee, as a mark of his "admiration for the man and the surgical work which he has done."

DEATH OF A MEDICAL HOUSE-OFFICER. — Another sad case of death during hospital duty is reported from London. Mr. Arthur Durham, a brilliant graduate of Christ's College, Cambridge, and of Guy's Hospital, died August 11th while on duty as medical house-officer at the London Fever Hospital, after an illness of only four days, from virulent diphtheria contracted from a patient.

ADMISSION OF WOMEN TO THE BRITISH MEDICAL ASSOCIATION. — In accordance with a resolution passed last year, the British Medical Association has amended its by-laws granting membership to women-physicians, or as they are called in England "*lady-medicals.*"

MEDICAL PROGRESS. — In a recent valedictory address at Glasgow University, Professor McKendrick summed up the results of the development of medical knowledge during the last thirty years, as follows: "Thousands of lives saved annually by preventive medicine; greater accuracy in diagnosis, and a sounder knowledge of the natural history of disease; more rational treatment; many diseases caused to pass through their stages more speedily, thus saving time; better means of relieving pain and suffering; and making disease, even when incurable, more tolerable, and at last smoothing the passage to the Elysian Fields."

Miscellany.

A MEANS OF RELIEF IN HAY FEVER.

THE capriciousness of hay fever and the occasional relief obtained from an entirely empirical method of treatment warrant the publication of any means which has proved successful, in the hope that it may be of use to some other person afflicted with this annoying and disabling disease.

Ferber, of Hamburg,[1] reports his own case which had been so severe as to necessitate his using a closed carriage all through the summer. His relief was brought about from accidentally noticing that in the winter a coryza was usually accompanied with hot ears which regained their normal temperature when the discharge from the nose was established. He determined to try a reversed order of effect on the hay fever in the summer, and began accordingly to rub his ears until they became red and hot.

It is now the third year that he has been able to lead an endurable existence during the hay fever season. "As soon as the least sensation of fulness in the nose appears, there is recognized a certain amount of pallor in the ears. A thorough rubbing of the ears, at times even to contusion, has always succeeded in freeing the nasal mucous membrane from its congestion. The rubbing, however, must be *thorough* and repeated as often as the least symptom of congestion returns to the nose. Since using this means I have been able to take long sandy walks, sit and even sleep with open windows or pass an evening in my garden without distress. Several patients have had the same relief from this treatment, always in proportion to the thoroughness of the rubbing, and I hope by this means some other physician may be able to give his patients the same great relief."

[1] Deutsche Med. Zeitung, No. 65, 1893.

THE ROTUNDA HOSPITAL REPORT.

DR. SMYLY'S clinical report to the Irish Academy of Medicine of the cases occurring in the Lying-in Hospital of Dublin during the last three years, has some interesting figures. In 3,602 confinements there were but 37 deaths from all causes. Ten of these deaths occurred in the first 1,200 cases, and were due to some form of sepsis. In the last two years no death has occurred from blood-poisoning. There were 107 cases demanding the use of forceps, with a mortality of 29 in the children so extracted. Forty-eight cases of post-partum hæmorrhage occurred, 17 of placenta prævia, and 21 of prolapsed funis.

THE SPACE RELATION OF NUMBERS.

FIXED psychological relations are always interesting subjects of study. The mental association of certain colors and sounds is not uncommon, and the conception of numbers as having a definite space relation is probably more frequent than has been supposed. A case of this primary space idea of numbers in a person taught arithmetic wholly *memoriter* is reported in a recent number of "*Science.*"

The numbers from 1 to 100 are conceived of by the author as holding, relatively, definite positions in space, from which they never vary. This numerical position has no relation with that of any other object or thing, nor with the position of the body or the points of the compass. "The numbers, which are conceived of merely as points or stations in space, appear to be arranged in a peculiar line or lines in a horizontal plane. Beginning with unity, the series runs in a straight line to 20, where it turns ninety degrees to the right, and so goes to 30. Using the points of the compass merely for the present description, and not from any connection with the number-scheme itself, — if the series 1–20 runs (say) northward, 20–30 runs always east, 20 being the apex of the right angle. From 30 to 40 the course is *reversed* and runs back westward; at 40 it again turns at a right angle and proceeds south, without interruption, to 90, where the line again turns east from 90 to 100. Above this point, the numbers have the same positions again. In the mental conception the line 30–40 does not coincide with the line 20–30, but seems parallel to it at some little distance; and a vague sense of space, gradually increasing until no distinct relation is consciously noted, prevents any approach or interference between the numbers above 40 and those below 20."

A CASE OF BILATERAL BRACHIAL PARALYSIS.

A CASE of bilateral traumatic paralysis of the brachial plexuses recently occurred in Bernhardt's clinic in Berlin.

A woman twenty-nine years old, was operated on for a double salpingo-oöphorectomy. During the operation, which lasted for an hour, the arms were held rather forcibly up and back, and shortly after the operation it was found that the woman had a double Erb's paralysis affecting almost identically the same muscles on each side. The infra- and supra-spinatus, the deltoid biceps, brachialis, and both supinators were completely paralyzed; the triceps and pectoralis major were partially so. Sensory disturbances in the skin existed over the areas supplied by the axillary, musculo-cutaneous and some of the branches of the median nerves.

The paralysis was evidently due to the crossing of the clavicles upon the transverse processes of the sixth and seventh cervical vertebræ, thus compressing the plexuses between two bony parts.

A favorable prognosis was given, and improvement followed persistent electrical treatment by galvanization through the supra-clavicular fossa, and gentle faradization of the muscles.

CARCINOMA OF THE ŒSOPHAGUS.

THE number of cases of primary cancer of the œsophagus so far reported is small — under two hundred.

The following case of Axtell's[1] is interesting in that the growth was primary; did not cause secondary infection, and was limited to the œsophagus. The patient was sixty years old and had had good health up to his present illness. There was no history of carcinoma or tuberculosis in the family. In November, 1891, while eating he experienced a peculiar sense of constriction in the epigastrium, which continued thereafter. He was able to take solid food without inconvenience until February, 1892, when he found that he could no longer swallow solid food, even if masticated very finely. If the food were swallowed it would be ejected in two or three minutes, apparently not passing beyond the level of the larynx. From that time he could take only liquid food and in September only in very small amounts.

He then began using the stomach-tube once a day and was able to take a little more nourishment. On passing the tube he could feel it turn on itself. He complained of a pronounced sense of weight, as though something were growing in the larynx. He had no cough, but at times a large amount of mucus would find its way into the throat and cause some inconvenience. An ivory bougie introduced into the œsophagus was stopped at a distance of twelve inches. He died of asthenia thirteen months from the first symptom noticed.

At the autopsy, an annular tumor-mass was found in the walls of the œsophagus one and one-half inches above the cardiac orifice of the stomach at no point more than two inches in vertical diameter. It was hard and nodular and almost completely closed the gullet. A fine probe could be pushed through the small opening without resistance. The mucous membrane over the growth was in a state of ulceration. The tumor-mass was completely isolated. No secondary growths were found anywhere, and the bronchial glands were not enlarged. Sections of the tumor-mass showed a typical scirrhous carcinoma, with small spheroidal cells in the alveoli.

[1] Medical News, August 12, 1893.

GANGLION.

THE frequency with which ganglion occurs, the disabling annoyance it causes, and the tendency it has to return after the usual treatment by rupture are well known and need no comment. There has been, however, much looseness in the use of the term, and many cases of teno-synovitis have been classed and treated as ganglion. This is unfortunate in two ways. The treatment of a synovitis should be by rest, a ganglion by quite other means; and to confuse the two is to maltreat the patient and spoil statistics of either cases.

Jordan[1] has made a detailed report of twenty-five cases of ganglion recently under his care. He includes in his list only cases of true ganglion, that is, a small cyst connected with the sheath of a tendon and unconnected with any of the more superficial structures; the sac consisting of a fibrous capsule lined with synovial membrane. The cause of the affection he believes to be in almost every case a hernial protrusion of the synovial membrane through a slit in the sheath of the tendon with a subsequent compression of the neck and closure by plastic inflammation from the rest of the synovial cavity.

Of the various methods of treatment none have been so successful as could be desired. Rupture, electrolysis, puncture, excision — all have well-known objections, either an insufficient cure or undue exposure of the tendon sheath to inflammatory action, and obliteration. He has found the most successful results from the aspiration from the sac of ten to sixty minims of the fluid and the injection of the same amount of Morton's fluid without removing the needle. The sac was rubbed to ensure thorough contact, and the hand then put upon a splint and padded, for five days. The previous failures from injection he attributes to too weak a fluid to cause sufficient inflammation, or to so strong a solution that it becomes surrounded by a layer of coagulated lymph before it touches the walls of the sac itself.

Of his cases twenty-three occurred in women — of whom seventeen were washerwomen or house-servants who have hard manual work to perform, and a considerable amount of "wringing" to do — the very kind of work that would be likely to lead to a hernia of the synovial membrane. Twenty of the ganglia occurred on the tendon of the extensor communis digitorum, one each on the extensor carpi radialis longior, extensor communis digitorum, extensor secundi internodii pollicis, peroneus longus and flexor longus pollicis.

The duration of the affection had been from six weeks to six years. The average amount of fluid withdrawn was thirty-eight minims, and of the injection about twenty. Several of the cases had been ruptured or otherwise treated before. None suffered any discomfort and all were reported well, with no return after the end of twenty-one months.

[1] The Lancet, July 29, 1893.

THERAPEUTIC NOTE.

SALOPHEN IN ACUTE RHEUMATISM.—Hardenberg[1] reports ten cases of acute rheumatism treated with salophen, and sums up his observations as follows: "A fifteen-grain dose every three or four hours for twenty-four hours is frequently sufficient. In no case was there observed any toxic effect or gastric or aural irritation. The average febrile period was but six days, and the average total stay in the hospital but ten days. The pain was quickly relieved and no cardiac complications followed." These conclusions are in all respects in accord with the observations of Caminer[2] and Froehlich[3] and the later reports of Osswald[4] and Koch,[5] all of whom found in the pleasanter taste of the drug an advantage over the salicylates. In cephalalgia, pleurodynia and some cases of trigeminal neuralgia marked relief was obtained from small doses. In the severer cases of acute rheumatism, however, the German observers looked upon salicylate of sodium as still the best remedy. Drasche and Hoischmann both report cases of the elimination of the drug by the skin in a crystalline form exactly like the crystals of the original powder. If this is true, it throws doubts upon the supposed splitting up of salophen into a salicylate and a phenol in the system. The remedy is best given in powders.

[1] New York Medical Record, vol. xliv, No. 5.
[2] Therapeut. Monatsh., No. 10, 1892.
[3] Wiener med. Woch., Nos. 25-28, 1892.
[4] Deutsch. med. Woch., No. 16, 1893.
[5] Loc. cit., No. 18, 1893.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 19, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	805	377	24.84	9.12	17.04	.48	3.72
Chicago	1,438,000	563	315	33.48	6.39	25.20	2.52	3.96
Philadelphia	1,116,560	465	206	24.42	4.40	18.48	1.54	1.76
Brooklyn	978,394	424	226	29.28	8.40	21.84	1.44	3.12
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	261	121	27.74	11.02	20.14	2.88	3.42
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	103	45	30.07	5.82	17.46	4.85	3.88
Cincinnati	305,000	92	40	22.68	14.04	17.28	2.16	2.16
Cleveland	200,000	125	66	16.80	7.20	3.20	8.00	2.40
Pittsburg	263,709	—	—	—	—	—	—	—
Milwaukee	250,000	123	90	49.41	4.05	37.20	2.43	5.67
Nashville	87,754	34	6	23.52	5.88	2.94	17.64	—
Charleston	65,165	—	—	—	—	—	—	—
Portland	40,000	22	10	40.95	—	31.85	4.55	4.55
Worcester	96,217	49	32	53.04	4.08	48.96	—	2.04
Fall River	87,411	49	35	55.08	4.08	55.08	—	—
Lowell	87,191	50	—	48.00	4.00	32.00	8.00	2.00
Cambridge	77,100	22	15	40.98	4.55	27.30	—	9.10
Lynn	62,656	22	15	27.30	—	27.30	—	—
Springfield	48,684	18	6	38.88	22.22	33.33	5.55	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	24	14	24.96	—	24.96	—	—
Holyoke	41,278	—	—	—	—	—	—	—
Salem	32,233	13	9	38.45	7.69	38.45	—	—
Brockton	32,140	10	5	20.00	—	20.00	—	—
Haverhill	31,396	21	15	28.56	9.52	28.56	—	—
Chelsea	30,264	15	5	6.66	20.00	—	—	—
Malden	29,394	13	4	38.45	7.69	38.45	—	—
Newton	27,556	—	—	—	—	—	—	—
Fitchburg	27,146	11	10	27.27	—	27.27	—	—
Taunton	26,972	15	5	33.33	20.00	33.33	—	—
Gloucester	26,688	7	4	—	14.28	—	—	—
Waltham	22,058	8	5	50.00	25.00	50.00	—	—
Quincy	19,642	8	6	62.50	—	50.00	—	—
Pittsfield	18,802	—	—	—	—	—	—	—
Everett	16,585	8	3	25.00	—	25.00	—	—
Northampton	16,331	3	0	—	—	—	—	—
Newburyport	14,073	10	4	20.00	30.00	20.00	—	—
Amesbury	10,920	8	6	37.50	—	37.50	—	—

Deaths reported 3,445: under five years of age 1,719; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fevers), 1,021, diarrhœal diseases 742, consumption 309, acute lung diseases 187, diphtheria and croup 105, typhoid fever 72, whooping-cough 28, cerebro-spinal meningitis 27, scarlet fever 20, malarial fever 13, measles 12, erysipelas 2.

From whooping-cough New York 7, Philadelphia 6, Chicago and Brooklyn 4 each, Washington 2, Boston, Cincinnati, Cleveland, Milwaukee and Cambridge 1 each. From cerebro-spinal meningitis Chicago 13, New York 5, Lowell 3, Washington 2, Philadelphia, Worcester, Somerville and Quincy 1 each. From scarlet fever New York 5, Milwaukee 3, Chicago, Philadelphia, Brooklyn, Boston, Cleveland and Malden 2 each. From malarial fever New York 6, Brooklyn 3, Boston, Cleveland and Nashville 1 each. From measles New York 6, Brooklyn 3, Philadelphia 2, Milwaukee 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,322,429, for the week ending August 5th, the death-rate was 21.9. Deaths reported 4,344; acute diseases of the respiratory organs (London), diarrhœa 695, whooping-cough 115, measles 85, diphtheria 77, fever 67, scarlet fever 66, small-pox (London, West Ham and Bradford 3 each, Birmingham and Salford 1 each) 11.

The death-rates ranged from 14.8 in Croydon to 34.1 in Preston; Birmingham 22.2, Blackburn 20.9, Bradford 22.6, Gateshead 20.6, Leeds 22.2, Leicester 21.7, Liverpool 30.8, London 20.8, Manchester 23.8, Newcastle-on-Tyne 18.3, Nottingham 18.4, Oldham 19.8, Sheffield 24.7.

In the thirty-three greater towns of England and Wales with an estimated population of 10,322,429, for the week ending August 12th, the death-rate was 20.9. Deaths reported 4,136; diarrhœa 604, measles 89, diphtheria 82, whooping-cough 76, fever 67, scarlet fever 47, small-pox (Salford 3, London and West Ham 2 each, Manchester and Bradford 1 each) 9.

The death-rates ranged from 12.9 in Croydon to 24.1 in Preston; Birmingham 20.3, Bradford 19.8, Hull 23.2, Leeds 22.5, Leicester 18.0, Liverpool 25.4, London 19.6, Manchester 23.9, Newcastle-on-Tyne 19.3, Nottingham 17.5, Sheffield 27.8, Sunderland 25.6, West Ham 16.1.

METEOROLOGICAL RECORD,

For the week ending August 19, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r.*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..13	30.00	66	73	60	66	48	57	N.W.	N.W.	19	12	O.	O.	0.01
M..14	30.00	64	76	53	46	41	43	N.W.	N.W.	12	11	C.	C.	
T..15	29.92	70	81	58	55	46	50	W.	N.W.	8	9	C.	C.	
W..16	29.96	62	67	58	70	70	70	N.	S.E.	10	5	O.	F.	
T..17	29.87	64	66	62	74	95	84	N.E.	E.	7	9	O.	R.	0.09
F..18	29.82	52	66	59	89	92	90	N.W.	N.E.	7	12	O.	R.	0.03
S..19	29.96	62	66	57	84	81	82	N.	S.E.	5	12	O.	F.	0.02
☞	29.94		71	58			68							0.15

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 19, 1893, TO AUGUST 25, 1893.

Board of officers to consist of COLONEL CHARLES H. ALDEN, assistant surgeon-general; LIEUT.-COL. WM. H. FORWOOD, deputy surgeon-general; MAJOR JOSEPH K. CORSON, surgeon, is, by direction of the Secretary of War, appointed to meet at the Army Medical Museum Building, Washington, D. C., Monday, September 4, 1893, for the examination of such officers as may be ordered before it, to determine their fitness for promotion.

By direction of the Secretary of War, a board of medical officers, to consist of COLONEL CHARLES H. ALDEN, assistant surgeon-general; LIEUT.-COL. WM. H. FORWOOD, deputy surgeon-general; MAJOR CHARLES SMART, surgeon; CAPTAIN WALTER REED, assistant surgeon, and CAPTAIN JAMES C. MERRILL, assistant surgeon, is constituted to meet at the Army Medical Museum Building in this city, on the 11th day of September, 1893, for the examination of candidates for admission to the Medical Corps of the ARMY. Par. 1, S. O. 193, Hdqrs. of the Army, A. G. O., Washington, August 23, 1893.

By direction of the Secretary of War, the following named medical officers are detailed to represent the Medical Depart-

ment of the Army at the Pan-American Medical Congress to be held in Washington, D. C., September 5 to 8, 1893: Colonel B. J. D. Irwin, assistant surgeon-general; Lieut.-Col. Dallas Bache, deputy surgeon-general; Major David L. Huntington, surgeon; Major Charles Smart, surgeon.

Lieut.-Col. Wm. D. Wolverton, deputy surgeon-general, is relieved from duty at Watervliet Arsenal, N. Y., and assigned to duty as medical director, Department of the Columbia, to relieve Lieut.-Col. C. C. Byrne, deputy surgeon-general, U. S. A.

Lieut.-Col. C. C. Byrne, deputy surgeon-general, on being relieved from duty as medical director, Department of the Columbia, will report for duty as medical director, Department of Dakota, to relieve Colonel Charles H. Alden, assistant surgeon-general.

Colonel Charles H. Alden, assistant surgeon-general, on being relieved from duty as medical director, Department of Dakota, will proceed to this city and report to the surgeon-general, U. S. A., for duty in his office and as president of the Army Medical School, Washington, D. C.

Leave of absence for one month, with permission to apply for an extension of ten days, is hereby granted to Captain J. L. Powell, assistant surgeon, U. S. A.

Leave of absence for one month, to take effect upon the return of Assistant Surgeon Glennan from leave, is granted Captain Wm. F. Carter, assistant surgeon.

Major Justus M. Brown, surgeon, is relieved from duty at Fort Meade, South Dakota, and assigned to duty at Fort Wayne, Michigan.

Leave of absence for one month, to take effect about September 1, 1893, is granted Captain Paul Shillock, assistant surgeon (in the field), with permission to apply for an extension of fifteen days.

The commanding officer, U. S. Troops, in the field near Fruitland, N. M., is authorized to employ a citizen physician in cases of necessity during absence of Captain Paul Shillock, assistant surgeon.

Leave of absence for one month, to commence about September 1, 1893, is granted Captain M. W. Wood, assistant surgeon, U. S. A.

By direction of the Secretary of War, the following named officers will report in person to Colonel C. H. Alden, assistant surgeon-general, president of the examining board appointed to meet at the Army Medical Museum Building, September 4, 1893, for examination for promotion, all assistant surgeons: Captain Curtis E. Price, Captain E. T. Comegys, Captain Walter Reed, Captain James C. Merrill.

Leave of absence for one month is granted Captain R. J. Gibson, assistant surgeon, U. S. A.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING AUGUST 26, 1893.

D. Bloodgood, medical director, placed on Retired List, August 20, 1893.

Geo. F. Winslow, surgeon, from "Monterey" and to the "Philadelphia."

A. A. Hochling, medical director, President of Board to examine applicants for Naval Academy.

G. T. Smith, passed assistant surgeon, from "Baltimore" and to "Wabash."

R. M. Kennedy, passed assistant surgeon, from "Wabash" and to the "Baltimore."

L. H. Stone, assistant surgeon, from Naval Hospital, New York, and to the "Minnesota."

J. E. Page, assistant surgeon, from the "Minnesota" and sick leave for three months.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE EIGHT WEEKS ENDING AUGUST 5, 1893.

Fessenden, C. S. D., surgeon. To proceed to Mobile, Ala., for duty. June 16, 1893. To proceed to New Orleans, La., as inspector. August 1, 1893.

Murray, R. D., surgeon. Granted leave of absence for seven days. June 21, 1893.

Vansant, John, surgeon. To proceed to Wilmington, N. C., for duty. June 16, 1893.

Austin, H. W., surgeon. To inspect Delaware Breakwater Quarantine Station. July 22, 1893.

Gassaway, J. M. surgeon. To proceed to Detroit, Mich., and Chicago, Ill., as inspector. July 12, 1893.

Irwin Fairfax, surgeon. Detailed for duty in office of the United States Consul, London, Eng. July 2, 1893.

Carter, H. R., surgeon. To proceed to Brunswick, Ga., for temporary duty. June 28, 1893.

Peckham, C. T., passed assistant surgeon. Granted leave of absence for six days. June 22, 1893.

Brooks, S. D., passed assistant surgeon. Granted leave of absence for three days. June 22, 1893.

Carrington, P. M., passed assistant surgeon. Detailed for duty in office of United States Consul, Bremen, Germany. June 15, 1893.

Kinyoun, J. J., passed assistant surgeon. To rejoin station, Washington, D. C. July 10, 1893. To inspect Camp Low, New Jersey. July 29, 1893.

Goodwin, H. T., passed assistant surgeon. Granted leave of absence for three days. June 12, 1893. To proceed to Louisville, Ky., for duty. July 12, 1893.

Vaughan, G. T., passed assistant surgeon. To proceed to Chicago, Ill., for temporary duty. July 10, 1893.

Geddings, H. D., passed assistant surgeon. To proceed to Delaware Breakwater Quarantine for duty. June 30, 1893.

Perry, J. C., passed assistant surgeon. To proceed to Portland, Me., for temporary duty. July 8, 1893.

Stimpson, W. G., assistant surgeon. Detailed for duty in office United States Consul, Glasgow, Scotland. July 7, 1893.

Gardner, C. H., assistant surgeon. Granted leave of absence for fourteen days. July 19, 1893.

Strayer, Edgar, assistant surgeon. To proceed to Vineyard Haven, Mass., for temporary duty. July 8, 1893.

Oakley, J. H., assistant surgeon. To proceed to Wilmington, N. C., for temporary duty. June 24, 1893.

Norman Seaton, assistant surgeon. Granted leave of absence for three days. July 24, 1893.

Branham, J. W., assistant surgeon. To proceed to Brunswick, Ga., for temporary duty. July 25, 1893.

Sprague, E K., assistant surgeon. Granted leave of absence for fifteen days. July 22, 1893.

Prochazka, Emil, assistant surgeon, Relieved from duty at Ellis Island, N. Y., and ordered to report to medical officer in command, New York, N. Y. July 29, 1893.

CORRECTION.

In the paper entitled "A Case of Acute Septicæmia," in the Journal of August 17th, on page 170, line 24 from the bottom of the first column, the words "with *the usual* amount of acute irritation," should read "with *an unusual* amount, etc."

RECENT DEATHS.

Dr. Antoine Blanche, the distinguished French alienist, died at Autenil, August 15th.

Mr. Francis Carr Beard, died in London, August 11th, aged seventy-eight years. He was a physician well known in literary circles, having been the adviser and intimate friend of both Charles Dickens and Wilkie Collins.

J. W. Branham, M.D., assistant surgeon in the Marine-Hospital Service, died of yellow fever at Brunswick, Ga., August 20th, aged twenty-five years.

BOOKS AND PAMPHLETS RECEIVED.

Unilateral Hypertrophy of the Face. By D. W. Montgomery, M.D. Reprint. 1893.

Some Successful Results in the Treatment of Epilepsy. By David Inglis, M.D. Reprint. 1893.

Cæsarean Section: Historical, Statistical and Clinical. By Hamilton Fisk Biggar, A.M., M.D., LL.D. 1893.

Zymotic Diseases in Chicago. Sanitary Exhibit of the Illinois State Board of Health, World's Columbian Exposition. 1893.

The Epileptic Interval; Its Phenomena and Their Importance as a Guide to Treatment. By William Browning, Ph.B., M.D. Reprint. 1893.

A Case of Mediastino-Pericarditis in a Child; Secondary Empyema; Operation; Death. By William A. Edwards, M.D., San Diego, Cal. Reprint. 1893.

Six Months' Medical Evidence in the Coroner's Court of Montreal. By Wyatt Johnston, M.D., Montreal, and George Villeneuve, M.D., Montreal. Reprint. 1893.

Abnormal Man, Being Essays on Education and Crime and Related Subjects, with Digests of Literature and a Bibliography. By Arthur MacDonald, Specialist in the Bureau of Education. Washington: Government Printing Office. 1893.

Lectures.

LECTURES ON SURGERY.[1]

BY DAVID W. CHEEVER, M.D.,
Professor of Surgery in Harvard University.

XV.

INJURIES OF THE HEAD.

I am well aware that this lecture is nothing but the outline of a great subject; and it would be impossible to do it justice in an hour. Perhaps it would be impossible for me to do it justice at all; but what I want to do is to give you a plain description of essentials, so that you can work up the subject for yourselves.

No injury of the head can be considered trivial, because the most simple one may lead to fatal consequences. Why that is so is most simply explained by considering the close connection between the contents of the cranium and the outside. We have on the surface a very loose covering over the skull; quite thin skin; very little cellular tissue; a slipping fascia attached to the occipito-frontalis muscle, and a pericranium or periosteum, and then the bone. The bone is not solid. It has a tough outer table. It is permeated with vessels through the centre; and the inner table is brittle and glass-like. Then we come directly to the dura mater, which is attached to the inside of the skull, and really performs the function of an inner periosteum and nourishes the bone. You know with what difficulty it is stripped off from the inside of the skull. The dura mater, however, differs from the periosteum in the fact that it is a fibro-serous membrane; and, consequently, it is very prone to inflammatory changes. You know the delicacy of serous membranes; the rapidity of their circulation; how easily they become irritated and throw out an excessive amount of serum; how, as in the pleural, or peritoneal cavity, that serum changes to fibrin, lymph or into pus. The inner surface of the dura mater, which is serous, forms a cavity called the arachnoid, a serous pocket, which supports the brain, and runs in various directions; and at the inner side of that, we have a close, glistening, vascular layer called pia mater; and then we come to the brain itself. Therefore while the brain is pretty well protected from external blows from the hardness of its envelop, yet it is not as if it were provided with a shell which had no connection with the outside world. It is closely connected by vascular connections, and also by the two layers of its nutrient membrane, dura mater and pericranium.

The simplest form of injury received outside of the skull may lead to trouble inside. A person may receive a scalp wound which does not injure the bone, but it may suppurate inside the dura. The suppuration may easily penetrate and burrow beneath the fascia of the occipito-frontalis muscle. It denudes the bone of its periosteum; leads to necrosis of the bone, the outer layer. There may follow phlebitis and plugging of the little veins of the diploe; transmission of the septic material through the diploe and the inner table; and, often, affection of the dura mater and its serous lining; and that means meningitis and all its consequences. The same thing may follow from a blow upon the head which has not broken the scalp, but has slightly bruised the bone and periosteum, and which may lead to subsequent periostitis with suppuration; necrosis, and exactly the same consequences. We expect of course that when a person receives a blow upon the skull severe enough to fracture the bone, that this envelop having been cracked through, an entrance has been offered to any sort of septic material which may be the cause of disease; but this may also be the case after the slightest possible forms of injuries. I think I have said enough to show that a slight fall upon the head, a slight blow upon the head, may, in a sensitive subject transmit the effects of violence to the brain with great rapidity, and with septic consequences. In addition to this you must remember that inside of the skull is the brain, reposing, to be sure, on a water-bed, and prevented, as far as possible, from jars, by the interposition of water, and of tough membranes called the falx and tentorium, which line it off as it were; and separate one part from another; preventing the jar of one portion from being transmitted to another; so that it is protected as far as possible; yet in spite of all this, the delicate tissue is liable to be shaken up and jarred by any violent fall, or blow upon the skull itself.

The simplest form of injury that the brain substance can receive is temporary, and is called concussion; shaking up. Old authors made a great distinction between concussion and compression. They attempted to classify as concussion everything which did not result directly in pressure on the brain followed by coma, stupor and paralysis. But we now know that this distinction was too nicely drawn; and that between simple concussion and real compression there are three or four intermediate stages, that sometimes are very disastrous in their consequences; and which, frequently, can be distinguished from one another.

We confine now the term concussion to a condition like the following: the patient falls; is temporarily stunned; that is to say, the brain is so shaken up that for the moment it loses its functions. Temporary unconsciousness ensues; the patient becomes pale; the pulse flickers a few moments. Phenomena very like syncope ensue. In a few minutes he rouses; is dizzy; gets up; regains consciousness slowly; has a certain amount of nausea; and then, afterwards, for the rest of the day, or for a short time, has headache, and the trouble is over. That is the simplest form of concussion. It is followed by no appreciable lesion. It is as if we had dropped some delicate instrument, like a watch, upon the floor, and temporarily stopped the works. Picking it up, and giving it a little shake, sometimes the watch will start on as if nothing had happened. So with the brain; and if such a case should be examined at the time, undoubtedly we could find nothing in the brain itself, left behind as a trace of the injury. That is, there is no real lesion.

On the other hand, the patient may receive a like injury, but a little more severe, and instead of recovering consciousness at once, may continue insensible for some little time; and only regain consciousness, perhaps, after some hours, when he slowly returns to consciousness; is sleepy; stupid and pale, and bathed in perspiration; has nausea, perhaps, for another day, and then slowly and gradually comes out of this condition, without any appreciable lesion, and recovers perfectly. That is the second stage, so-called, of concussion. In that case concussion has been followed by a moderate amount of effusion of serum in the ventricles

[1] These are unwritten lectures printed from the stenographer's reports. Verbal corrections are made in revision, but no rhetorical changes. They were delivered to the third and fourth classes as part of the regular course.

and in the arachnoid cavity, producing temporary compression, of short duration; it is speedily absorbed again, and the patient is restored to health.

Another degree still more severe is this: the patient goes through the same phenomena; they last much longer; instead of getting well in a day he gets well in a few weeks, or more. During this time he has positive symptoms of compression of some part of the brain, followed by slight local paralyses; and then, after a while, he recovers even from these. In that case the concussion has been followed by the rupture of some small vessels and by effusion of blood; which blood has coagulated; has compressed limited areas of the brain; has been slowly absorbed, and the patient has recovered.

And finally, there is a stage of concussion which is extremely common and whose symptoms are very peculiar, and which is called, sometimes, concussion with contusion of the brain. In other words, the brain is bruised. The patient receives a blow; goes through the usual phenomena of unconciousness for a short time; rouses from the supposed concussion. There is no paralysis left; but there is high temperature; there is a general irritable condition of the special senses: acute hearing; disagreeable sensibility to light; pupils usually contracted; and frequently one contracted a good deal more than the other; irregular pupils; restlessness; want of sleep; general nervous exitement without positive delirium; this condition coming on for a week, or more; then being followed by severe symptoms of fever; by a chill; by paralysis and by death. In these cases we have what is called concussion of the brain, with contusion or bruising.

First, the shaking up; then the shaking up that went so far that it lacerated some part of the brain. Now, where is that most likely to occur? Obviously if we look at the inside of the skull we must see that that is more likely to occur somewhere about the base of the skull; about these numerous irregularities of the fossæ of the base of the skull. Accordingly the contusions of the brain are generally found somewhere toward the base of the brain; and the symptoms produced, of course, vary according to the particular part of the nervous centre that is injured. These contusions often are of extremely limited extent; and a careful watch sometimes has to be made for them at the autopsy to find where the mischief has been. We do not find a large softened spot of brain; and do not find, perhaps, any large effusion of blood; but search shows, that in certain places, what are called miliary extravasations have taken place. I mean by miliary extravasations the same minute points that we mean when we speak of miliary tubercles in the lungs. Little clots; little softenings; little tumors; capillary bleedings which give rise subsequently to gradual arrest of the circulation of the part from pressure; and afterwards to softening of the substance of the brain; and to minute abscesses, followed by coma and death.

When a man is knocked over, gets up and goes about his business and feels no great disturbance except slight headache, he has been stunned, and has had a slight concussion of the brain. Anything beyond that is almost always accompanied by some permanent lesion; one that will last for hours, or days, or longer. In the simple cases, effusion of serum; in the more severe class of cases, effusion of blood; and in the severest class, bruising of the brain substance itself.

Now, on the other hand, when a person, for instance, receives a blow from a club in the hand of some other person upon the top of the head, and is knocked down in consequence, a scalp wound may be produced; in which case we wash away the blood and look at it, and find a large piece of the skull driven in; never driven in squarely; but compressing the brain substance itself. Such a piece of bone, if raised, is frequently found to have torn the dura mater; and it not infrequently happens, when we first see the patient, that we find portions of cerebral substance oozing from out of the chink where the bone has torn through the dura mater and lacerated the brain itself. Such a patient is felled unconscious, but he never rouses. As long as he is untreated, he never rouses. That is true compression of the brain. A blow which has knocked in the skull, lacerated the dura mater, crushed the brain substance and interfered permanently with the function of the brain by pressure is called compression. A case so marked as this gives very marked symptoms; and quite distinct from the symptoms of the various degrees of concussion that we have mentioned. Such a patient has dilated pupils, which are wide open and will not respond to light. He snores in respiration, just as a patient does under the profound anæsthesia of ether. He sweats profusely. His pulse is extremely slow and full and labored; sometimes sinking as low as fifty, forty-eight, forty-five or forty, or even thirty beats a minute. It is regular, and full and bounding; but extremely slow. He is practically dead to consciousness. He is unable to swallow; unable to rouse; does not use his limbs; is perfectly unconscious. This condition, if not interfered with, terminates in death, but not immediately. The patient lasts quite a while; generally into the second day; sometimes a few hours; but usually thirty-six to forty-eight hours, before he gradually sinks and dies, with an interrupted, sighing respiration, without the slightest return of consciousness. This is pure and distinct compression. Between such a state as this and the condition of a patient temporarily stunned, who is quickly roused; with flickering pulse; irregular pupils; nausea, etc.; the distinction is extremely marked. Simple concussion, the lighter degrees, are usually distinct from those of pure compression; and it is only when we come to cases of concussion of the third and fourth classes, where there has been a lacerated blood-vessel, or bruised brain, that the symptoms begin to run together, and it is difficult to tell the symptoms of concussion with contusion from those of compression itself. I speak of this more particularly because in the older books on surgery a distinction was made between concussion and compression. Concussion was so-and-so; compression so-and-so, as if all cases of head injury which were at all severe could be classed at once as simple concussion, or profound compression; whereas they grade into each other; the condition of the pupils now has come to be less and less regarded as diagnostic of one from the other. The most important prognostic point about the condition of the pupils, which seems to have been brought out by late investigations, is whether or not they will respond to light. If they respond to light, a large percentage rouse and recover; if they do not respond to light, a very large majority never rouse from the condition of coma. The patient may be unconscious; and yet the pupil, if a bright light is thrown on, may act, or may not act; and that seems to give us a very important guide as to the future of the case.

When the concussion is accompanied by effusion of serum, it is poured out about the seat of the injury in the arachnoid cavity. This also distends the ventricles, adds largely to the amount of cerebro-spinal fluid, and makes a temporary serous apoplexy as it is called, temporary serous compression. This does not last long. It is soon absorbed and goes away. It would be hardly worth while to inquire where such an effusion of serum probably begins. It soon becomes diffused, and its symptoms, which are produced in a few minutes, seem to be about the same no matter where the first blow was received. It is absorbed again and its symptoms pass off. Not so with the effusion of blood. It makes an immense difference where the effusion of blood starts from. After a blow received upon the head which ruptures a vessel inside the skull, blood may be poured out in quite a variety of situations according to the vessel that was wounded. In the first place, it may be between the dura mater and the skull; in which case it is very distinctly localized; and cannot be poured out very rapidly. It has to dissect up the dura mater from the skull itself; slowly tearing away the membrane from the bone; and by the hydraulic pressure of the pumping vessel a clot is slowly formed between the skull and the dura mater; it coagulates, and separates the membranes from the skull.

On the other hand, the effusion of blood may take place inside the cavity of the arachnoid. The vessels may be ruptured there. In that case the hæmorrhage goes on rapidly. There is nothing to arrest it, nothing to localize it or determine where it shall go except the thousand accidents which may come from the position of the patient, the side on which his head lies. The effusion of blood in the arachnoid cavity rapidly diffuses itself in any direction according to the laws of gravity, and ceases to be localized very soon after the vessel is ruptured.

Not so from the laceration of deeper vessels about the base of the skull, which result from a tear of a nutritive vessel permeating the brain substance itself. These must be localized. They form local clots; their phenomena resemble those which follow an ordinary attack of apoplexy, where one of the nutritive vessels in the brain bursts and a clot is poured out; is localized; pushes aside brain tissue; cannot become very large, and the symptoms produced are due to the loss of function of that particular spot of the brain where it occurs, and the part of the brain which it happens to compress.

In old times, Mr. Pott, an eminent surgeon in London, wrote a book on trephining the skull for injuries of the skull and lacerations of vessels, in which he thought he could determine the place where the vessel was ruptured, trephine and remove the clot, and relieve the symptoms and cure the patient; and for a certain percentage of cases he did so; but it so happened that, in all probability, the larger proportion of Mr. Pott's cases were those of extra-dural hæmorrhage; that is, between the dura and the bone. The vessel most likely to be ruptured there is the middle meningeal artery, which passes up behind the inner side of the temporal bone, one and a fourth inches behind the outer angle of the orbit. A blow being received in that vicinity, if it ruptured a vessel inside the skull, is more likely to rupture the middle meningeal artery than any other. A blow on the squamous portion of the temporal bone is likely to crack through that bone and to rupture the middle meningeal artery. Probably a good many of Mr. Pott's cases were rupture of the middle meningeal artery. The effusion was localized; was directly beneath the site of the blow. The bruise on the scalp, or the cut on the scalp, led to the location of the clot inside the skull. On trephining he found the clot; removed it, and the patient was relieved.

On the other hand, we have no guide as to the location of effusions of blood in the arachnoid cavity. They are poured out, diffuse themselves, may go anywhere within the arachnoid cavity. The coagulations, however, which take place in the brain substance, from rupture of a vessel there, produce as distinct and permanent a class of paralyses as the various forms of apoplexy, and can be localized better.

Perhaps it is well, in this connection, to point out to you the very great distinction which exists in the rapidity of the symptoms that are produced between compression caused by a piece of bone driven down upon the brain, and compression caused by extravasation of blood between the dura mater and brain from a tear of the middle meningeal artery, or from some other vessel between the skull and the dura mater. Take the patient who is knocked down we will suppose with an axe; the skull driven in; he is instantly felled and unconscious; lies comatose — this is an example of compression. On the other hand, the patient who has received a blow rupturing one of the extra-dural vessels goes through the following series of phenomena. At first he is stunned; he rouses from that; after lying a few moments he is able to get up; feels dizzy and uncertain; but retains consciousness; and is frequently able to walk; grows better for some little time; and it is only after the lapse of a half-hour, or hour, that he begins to feel a sense of terrible weight and stupor in the head, and gradually becomes more and more dizzy, until finally he drops into a state of paralysis and unconsciousness and compression. This arises from the gradual effusion of blood which is poured out with great force between the dura mater and the skull; dissects the dura mater from the skull in proportion to its size; must compress the brain, because the skull cannot yield, and the dura mater and brain can.

Compression from hæmorrhage inside the skull is gradual; compression from the driving in of bone is immediate. Those are the general distinctions between the two.

All the phenomena of head injury, however, as regards the point where the blow was received, and the consequent injury, are very much modified and confused by another force which comes into play, and which is called contre coup; that is, transmitted force to the opposite side of the skull. Hence effusion of blood and the phenomena of paralysis may be all due to an injury at a point directly opposite the point at which the blow was received. This, of course, confuses very much the diagnosis and prognosis of brain injuries.

We hear a good deal of fractures of the base of the skull. They are various in character. There are certain parts at the base of the skull which are quite thin and which more readily break than others. Those are called fossæ. We have the anterior, middle and posterior cerebral fossæ. The anterior cerebral fossa is formed by the roofs of the orbits which are extremely thin; and it is bounded by the glenoid process of the sphenoid bone, which separates it from the next, the middle fossa, which is quite thin. This is bounded by

the firm structure of the petrous portion of the temporal bone. Then we have the posterior fossa where the occipital bone is quite thin down by the foramen magnum, bounded by the temporal bone in front and the thick occiput behind; and it is thin also over the venous sinuses at the base of the brain.

Fracture of the base of the skull is difficult to diagnosticate, because we cannot see anything; can trace nothing; can feel nothing about the skull. The injury is where we cannot trace the fractured bone, or be guided by any of the ordinary signs; and can only infer and reason from symptoms, where, probably, a fracture of the base has taken place, if it has taken place at all. The patient may be in a state of compression, and yet there may be no evidence of depression of bone upon the surface of the skull. The question then arises whether this compression may be due wholly to laceration of brain and formation of clots, or whether it is accompanied also by fracture of the bone, out of sight, in the base of the skull. It is sometimes difficult to distinguish between the two. There are certain phenomena which show themselves outside which enable us to judge to a certain degree; and these phenomena are quite important. In fracture of the anterior fossa of the base of the skull, we have the roofs of the orbit cracked through more or less; have the cribriform plate very easily cracked through; and occasionally we have also an opening forward into the frontal sinus; but, at any rate, the cribriform plate, or the roof of the orbit, is almost sure to be broken through. Two series of phenomena follow: nose-bleed coming from the cribriform plate, from the rupture of veins there; and the other is what we call subconjunctival ecchymosis, ecchymosis not in the ordinary form of black eye which breaks the vessels of the lid or conjunctiva, but bleeding which takes place beneath the conjunctiva, and spreads itself over the sclerotic coat of the eye. This is due to the rupture of vessels deep in the orbit. In severe cases this blood may extend, if the crack through the orbit is extensive, may extend elsewhere, and gradually the patient will exhibit discolorations upon the face and neck, several days after the injury, the face becoming black-and-blue in extreme cases. Ordinarily, we have nose-bleed and ecchymosis in the orbit.

Now, on the other hand, if the middle fossa is broken through, the most likely place where blood will be poured out is into the throat and mouth. The top of the pharynx is attached at the junction of the spheno-occipital bone; and hence bleeding into the mouth and throat is not uncommon in consequence of fracture of the middle fossa of the base of the skull. Inasmuch as the petrous portion of the temporal bone is so near, frequently we have lacerations which extend through the middle chamber of the ear, and cause bleeding from the ear itself. Bleeding from the ear, and serous discharge from the ear, have long been considered among the most significant symptoms of fracture of the middle fossa of the base of the skull. They are not, however, diagnostic. The bleeding from the ear is quite common in severe injuries of the head, and does not necessarily mean any injury of the bone. Any small vessel may be ruptured and bleeding take place. Neither does the discharge of serum from the external ear, unless very profuse in quantity, necessarily mean fracture of the middle fossa about the base of the skull, and the leaking of cerebro-spinal fluid. When profuse and long-continued, then it can be nothing but cerebro-spinal fluid which runs out through the fracture of the middle fossa at the base of the skull and the laceration of the membranes; it is increased in quantity by the irritation of the injury, just as we see in other cases where an injury has been received, and it is poured out in large quantities. This, however, is extremely rare. When it is seen, it is a diagnostic symptom of fracture of the middle fossa of the base of the skull.

When, however, the serous fluid is only seen slightly, for a short time, doubtful, mixed with blood, it may mean nothing more than the liquid contents of the vestibule and labyrinth which have leaked out through the fissure of the drum, and possibly the partial fissure of the temporal bone, which may not extend inside of the skull to the cavity of the brain.

One other symptom, however, may arise in this connection, which is very characteristic, and that is facial paralysis. Facial paralysis, if it occurs in connection with these other symptoms, is almost diagnostic of fracture of the middle fossa of the base of the skull, because it shows that the petrous portion of the temporal bone has been broken through, that the facial nerve has been compressed in its bony canal, and facial paralysis is the direct consequence.

In the posterior fossa we also have laceration into the ear. We have also other symptoms; we may have bleeding into the pharynx, the same as in the middle fossa. We have one other symptom, quite diagnostic sometimes, and that is a break through the lateral sinus, and effusion of blood in and behind the mastoid process, and out in the neck; large ecchymoses gradually forming behind the ear, and running down the back of the neck. These are very marked; and indicate, almost invariably, rupture of the lateral sinus with leaking out of venous blood into the tissues behind the ear, behind the mastoid process, and down between the long muscles of the neck.

Nose-bleed, subconjunctival ecchymosis, bleeding in the pharynx, blood and serous discharge from the ears, facial paralysis, large ecchymoses behind the mastoid process — those are the common phenomena accompanying fracture of the base of the skull.

Fracture of the base of the skull can hardly occur without cerebral laceration and some effusion of blood within the skull itself; therefore the symptoms are almost always of the mixed variety. There may be complete unconsciousness. There may not be. It depends upon the amount of compression. If the patient lives, the case is a long one to recover. Some of them do recover. It sometimes is a long one, if it has a fatal result; and fracture of the base of the skull is occasionally followed by a prolongation of life for a week or ten days, during which the patient finally sinks, with symptoms of cerebral abscess and softening.

One great danger that arises in injuries of the head is from the occurrence of septic absorption from some of the wounded tissues. This, of course, is especially the case in wounds which communicate with the air, and in compound fractures. That danger, and the danger of injury of the brain and membranes by fragments of bone, is the next point we have to speak of.

Now the only way that we know of averting the dangers of sepsis and pressure is by surgical interference. Surgical interference in the skull means generally the use of the trephine, because otherwise we cannot get at the injured parts. It is true that occasionally a fracture of the skull occurs which is so comminuted

that we have only to press away the periosteum and flesh, to pick out certain loose pieces of bone, and we need no further instrumental interference; but usually the bone is driven in under the sound portion, shelved in under the edge obliquely and fastened there, so that it is impossible to extract it. In order to extract it and relieve the pressure, we have to cut out a button of adjoining bone to get room to insert forceps to remove it.

As little of the sound bone is to be cut away as possible; but the centre of the trephine, of course, must be started on the sound bone, and a piece cut out which includes a little more than one-half the circumference on the sound bone, and the rest on the depressed fracture. That is the usual rule.

Such a thing being fully accomplished, and the piece taken out, then the parts are thoroughly cleansed, and dressed antiseptically, as in an ordinary wound. Sometimes a drainage-tube is put in.

But the most important question for us to consider, and one that is yet not fully settled, is, when it is best to interfere at all. In old times trephining was a very different thing from what it is now. It is not too much to say, I think, that the introduction of the aseptic method has diminished the danger, and the mortality from trephining very much. Before the antiseptic method the mortality from trephining was great; so much so that many were discouraged from interfering; and we abstained from using the trephine, if we could find a proper excuse to do so. Now, under the additional safety of the antiseptic method, the tendency has perhaps gone too far the other way; and the tendency of the times is to use operative interference in perhaps more cases than is really necessary.

For a clear understanding of the matter it will be best to proceed in this way: — What cases, in the first place, should be trephined under any method of practice; demand trephining? First, punctured, depressed fracture. Some little hard substance, like a bit of iron or sharp piece of steel or portion of a block from a ship, falls from a considerable height, strikes the patient squarely on top of the head, produces a minute punctured scalp wound, also a minute punctured wound of the skull, exactly as if a nail had been held against the skull and driven in with one blow of the hammer. At first the patient undergoes the usual phenomena of a temporary concussion; he falls and is unconscious, but soon comes out of that; and, subsequently, he frequently gets up, and often walks to the hospital; and comes in to have a simple scalp wound dressed, not feeling that he is deeply hurt, and not willing to believe it. The symptoms which are produced by this injury are not immediate; and unless we knew, by experience, what was going to follow in all these cases, after a few days, if let alone, we should not feel called upon to interfere with the patient at all. But the subsequent history is this: the outer table being broken through in a minute hole, the inner table is also depressed and shivered into fragments; and although the outer table may be in one piece, the inner table is almost always in several pieces; minute and detached and sharp fragments, which press in on the dura mater, and surely set up meningitis. They do not at first make sufficient compression to make the patient sick; but in a few days he begins to be sick; symptoms of meningitis come on; and then the little pieces, which are detached and unnourished, necrose, and continue the suppurative process, and set up septic phenomena in addition to the ordinary ones of inflammation of the meninges; and the result is almost inevitably fatal. Such patients have, at first, but few symptoms except the immediate effect of the concussion; have a little headache and dizziness and do not feel much sick. If not treated, in a few days this series of phenomena begins to come on: the patient begins to grow a little restless, uneasy, a little sensitive to light, a little acute about hearing sounds, begins to have persistent headache; his temperature rises, and presently are ushered in the symptoms of acute inflammation of the membranes. Here is a case where trephining is called for at any rate. The patient must be persuaded to submit to it; and a cure, at such an early stage and with so slight an injury of the parts, is pretty sure to be produced; but even if it were not sure to be produced, we should persuade the patient that he should be trephined, on account of the subsequent history, which is sure to be disastrous.

Now the ordinary case which calls for trephining, which I will describe next, cannot admit of any doubt to any one's mind. The patient has received a scalp wound; the same blow has broken the skull. The skull has been driven in, perhaps cracked in several directions. He lies in a state of coma, unconscious, with stertor and all the symptoms of compression. If you can, lift up the bone; if you cannot, you must trephine, and take off all the pressure from the brain. That case, of course, admits of not the slightest doubt at all.

Now comes another case which is not quite so plain. The patient comes in with no scalp wound, has a hæmatoma under the scalp. It is hard to tell whether or not he has a depression, but he has the symptoms of immediate compression. He was struck, fell unconscious, has never roused, remains in a state of coma, with stertor and slow pulse. Such immediate effects produced can hardly fail to be due to depression of bone, because there has not been time for effusion of blood to take place, and this latter brings on the phenomena of compression more gradually.

Given a patient who has received a blow upon the head and has symptoms of compression, it is imperative to interfere. If we find fracture, we should trephine. No one can hesitate with the bone depressed before their eyes and the scalp gaping open, to interfere and remove the piece. It is more difficult to decide and persuade ourselves to cut through the unbroken scalp; to subject the patient to some risk of a wound through the scalp, which he has not already suffered, to relieve symptoms which are somewhat obscure; but if he has distinct symptoms of compression, I think we should not hesitate to interfere to the extent of making thorough incisions, exploring, and acting according to what we find.

In old times one trephined for this. In modern times we should do the same.

Now come more doubtful cases. The most marked of these is where the patient receives a blow, remains conscious some time, becomes gradually unconscious, and we have every reason to believe is suffering from compression from blood inside the skull, a clot. The whole point turns upon whether that clot can be localized; and if it can be localized, whether it can be reached and removed by trephining the skull, and then turning out the clot. The location of the injury, if over a large vessel like the middle meningeal; the slow occurrence of the symptoms; the exactness with which

the symptoms can be defined, must guide us a good deal in this respect; and, it is fair to say, that if we succeed in finding the location of the clot and removing it, and it is outside the membranes, we shall almost inevitably make a brilliant success. The symptoms will be relieved just as they would by taking away a piece of bone; and the patient will recover. If, on the other hand, the blood has been poured out into the arachnoid cavity, we may not find it, and may not succeed in curing the patient. Now it is in this class of cases, which, so to speak, are on the border line between interference and non-interference, that we may apply the principles of modern antiseptic surgery, which renders it so much more safe to trephine than it was formerly. There is no very serious mischief produced by trephining, unless we feel obliged to puncture the dura mater and explore inside the arachnoid cavity, or the brain; then we do subject the patient to a good deal of additional risk; and one must judge for himself, from the appearances of the part beneath, and the non-relief of the symptoms, whether it is wise to persevere. Loss of pulsation in the brain; bulging, etc., all those symptoms must decide us, whether it is best to cut down through the dura mater, and seek for the clot.

Much slower symptoms come on when abscess forms. The patient may have received a slight injury. The symptoms at first may be very obscure, indicating perhaps concussion with contusion; — irritable pulse, and rather sleepless nights; one pupil larger than the other, and a mild form of delirium coming on. This may go on some little time, when suddenly there occurs a chill; usually in the course of five to eight days, sometimes in the second week. After this, a profuse sweat and high temperature; and then commencing symptoms of stupor; growing duller; respirations growing slower; pulse growing slow; other symptoms of compression coming on; until finally, if the patient has no relief, he sinks into a state of profound coma, and dies at the end of a few days. These are the phenomena of suppuration occurring around an injured point in the brain; that is, the brain has been bruised; miliary extravasations have taken place; gradually these have undergone septic changes and have softened; the initial stage of suppuration is marked by the chill; abscess of the cerebrum forms, with all the symptoms of compression added to the symptoms of suppuration. Here is a case, then, where under the old method we should trephine with great hesitancy; under the modern method we are quite justified in trephining; in cutting through the dura mater, and in exploring, in the hope of finding pus and letting it out. If we fail, the patient certainly is not any worse than before. He was truly on the road to death under the symptoms he had before. If we succeed, and evacuate the pus, and drain and wash out the cavity, occasionally we get a cure.

These responsibilities are very serious, and we want to be quite clear that the diagnosis is fairly certain, that the patient is quite sure to die as he is going on, before we venture on so profound an injury to the brain, in the hope of finding a suppurating centre. Hence we see that certain cases are quite clear; while some are quite doubtful. We are encouraged to trephine much oftener than formerly on account of the immunity afforded by aseptic surgery.

There is a class of cases where in old times no one would have thought of interfering, and in modern times people do interfere, and which may be classified as cases where the operation may be justifiable, or may not be justifiable, according to the light of statistics. Such cases as these are essentially chronic cases; cannot be acute ones. Acute ones drive us to a decision, one way or the other, at once. The phenomena are so severe that they usually are pretty clear; but it is the chronic case that can be considered for days; and whose whole history is to be gone over for months; the family history to be considered; whether the patient has descended from epileptic parents; or whether he possibly has original, or inherited syphilis; all these things have to be weighed thoroughly, before we trephine these chronic cases. We trephine, nowadays, for epilepsy; for scar-tissue thought to be the seat of chronic headache and to produce epilepsy; for syphilitic thickening; for syphilitic gummatous tumor; for brain tumors of another class which are usually either soft glioma or sarcoma; and for tension, meaning by that something inside the head which is pressing the brain; irritating; and which may be relieved by cutting a hole in the skull; then cutting open the dura mater, and allowing the tension to be taken off; the serum to drain away; and more room to be given to the parts. For all these things, trephining is occasionally done. It is frequently done without any relief to the patient. It is fair to say, it is frequently done without any damage to the patient. It is extraordinary how under modern antiseptic methods, a good many of these doubtful cases are explored and then heal up; and, apparently, are neither better nor worse than before. Some of them occasionally get better.

There is a curious affection of the brain, after the membranes have been cut away, which used to be called hernia of the brain. The pulsation of the brain inside the head, apparently, the moment the tension of the enveloping sheath of the membrane is taken off, pushes the soft brain substance up into the opening; tends to protrude it more and more; and gives rise to a species of tumor, which used to be called hernia of the brain. It has been proved, I think, that the mass that grows out in these openings is not really so much brain tissue, as a sort of irregular fungus growth; a proliferation, which takes place on the surface of the brain. It is difficult to treat. It is frequently fatal. In the older times of surgery it was very commonly fatal, and was very much dreaded. Compression, if applied too forcibly to restrain its pushing out, may produce symptoms of coma and compression of the true brain beneath. Agents applied to it in the shape of styptics, or astringents, or escharotics have to be used, of course, with a great deal of caution, because that also may light up a meningitis; or destroy true brain-tissue and lead to cerebral abscess. Under the modern treatment hernia of the brain seems to get along much better than it used to; and it is quite encouraging that it does. Keeping it packed antiseptically with gauze; keeping up moderate pressure, seems to check the fungus proliferation and the formation of serum and pus, which formerly took place to a great degree; and some of these forms of hernia can be led to heal without serious symptoms.

To sum up briefly: We must never forget that any head injury may become serious; that even a slight concussion is not safe, until a fortnight has elapsed; that it is more dangerous in the child than in the adult; that the child who has received a concussion is certainly not to be considered safe, until two weeks have elapsed, although the first few days of headache may have passed off; that this is especially true, and to be

regarded with great care and suspicion, if the child happens to inherit a tuberculous constitution, because tubercular meningitis is very easily provoked in such a child; that all head injuries, which are at all severe, are well treated by the old antiphlogistic method, aided by antisepsis (by this I mean reducing and quieting treatment, in various forms); that antiseptics have given us greatly increased advantages in treating scalp wounds, fractures of the skull, inflammations of the brain, extravasations into the brain, and tumors in the brain, from whatever cause; that there are certain very simple rules to be followed with regard to trephining — a few cases which are plain and apparent, such as direct, compressing fractures which are compound; fractures which are not compound, but still are compressing; and punctured fractures; that there is another class of cases where we trephine for clot, or abscess, where the diagnosis is a little more difficult, but still where there is a fair percentage of success; and, finally, there is a very large class of chronic cases, where we balance the probabilities, where we are encouraged occasionally to interfere by trephining, and encouraged especially by the fact that trephining is not the fatal operation that it used to be.

THE MISUSE OF DRUGS IN MODERN PRACTICE.[1]

BY JOHN T. G. NICHOLS, M.D., OF CAMBRIDGE.

Mr. President and Fellows of the Massachusetts Medical Society: — The first article in the Code of Ethics adopted by this Society declares that "a physician should lend his influence to encourage sound medical education, and to uphold in the community correct views of the powers and limitations of medical science and art."

This Society has always held that education is the only source of a sound practice of the medical art. While it has fairly stated the powers of the art, it has not failed to speak of its limitations in plain and honest words.

Much as the Society has done in the past, the work is not finished. The war against ignorance and superstition is a never-ending one. This community guards its property with jealous care. The lawyer cannot practise his profession until he has passed the examination of the court. The pilot, who brings the merchandise of our citizens safely into port, must have proved his ability before the proper tribunal. Even the drain-layer must have a license, and presumably have shown his fitness for his work.

Not so does it deal with those who profess to cure the diseases of its people. The educated physician and the quack stand on equal terms before the law. Other States have passed laws which have driven out ignorant pretenders to medical skill. We have opened our doors to them. They have become so many and so strong as to prevent the enactment of a law to compel every one who claims to be a practitioner of the art of healing disease to prove his knowledge of its fundamental principles. What a comment on the good sense of our community in the closing years of the nineteenth century. The man who lays a drain must have a license; the man who deals with the health and lives of its people needs none!

[1] The Annual Discourse delivered before the Massachusetts Medical Society, June 14, 1893.

The only explanation of such a want of common sense in a community so intelligent as ours, is that incorrect views of the powers and limitations of the medical art still prevail. Disease is still looked upon as the result of some malign force. Drugs are still thought to be the most efficient agents to cure it. The advertising pages of the newspapers are filled with promises of cure for all the "thousand natural shocks that flesh is heir to." The mails are flooded with circulars, the streets littered with hand-bills, relating wonderful cures of diseases which have baffled the skill of regular physicians. Money is freely expended in this business by men who look for a return from their investments. That it is a profitable enterprise is shown by its growth. While it is not new, it was never so extensive or so elaborate in its methods as now. Our patients, when they carry our prescriptions to the apothecary, see large stocks of these proprietary and secret remedies on his shelves. The great stores, where almost everything is sold, advertise "cut prices" on these goods. Grocers, even, display them by the side of articles much more tempting to the taste. How largely they are used this audience well knows.

The grosser forms of quackery which claim supernatural powers, finding their victims among the superstitious, who are not always ignorant people, I need not describe. This Society is not responsible for them, nor for the folly of those who resort to them. But when we consider the widespread belief in the community, that drugs are always useful, and generally necessary in the treatment of disease, we may well ask if we are not, in some degree, responsible for it.

Each generation is prone to think itself wiser than those that have gone before it. We admit the mistaken practice of our forefathers. We congratulate ourselves that the day of blood-letting, of mercurials, of disturbing medicines in general, has gone by. We see that faith in drugs, still so prevalent, was the lesson taught by the profession in those earlier days. Do the modern methods of treating disease justify the public in maintaining this belief?

I ask you to listen to some considerations upon the misuse of drugs at the present time; the limitations to their usefulness; and the powers of the medical art which have been gained from other sources than drugs.

It is often said that we do not give as much medicine as our fathers did. If this is true, it is not due to a want of material. We are told that Hippocrates mentions only two-hundred and sixty-five drugs in his writings.[2] The Pharmacopœia of this Society, published in 1808, includes the materia medica and its preparations and compositions in one hundred and seventy duodecimo pages. If we compare this book with the last revision of the United States Pharmacopœia, or with the last edition of the United States Dispensatory, we may well doubt the truth of the statement.

It is true that the Dispensatory includes many obsolete and inert drugs, but the list of medicines in daily use is many times longer than that of our early Pharmacopœia. Nor is it yet completed. The mineral, vegetable, and even the animal kingdoms are almost daily giving us new remedies. The chemist, by skilful synthesis, makes new compounds out of old ones. The pharmaceutist combines and offers in attractive and convenient forms the many drugs which the modern system of treatment demands.

[2] Encyclopædia Britannica: Art. Medicine.

Our drugs have gained in power as well as in number. A large part of the old Pharmacopœia of our Society consisted of drugs of little power for harm. To produce any effect, the doses were so large, and so repulsive to sight, smell and taste, that the fortunate power of the stomach to reverse its muscular action often saved the patient from harm. Now the chemist has separated the active principles of drugs, giving us agents of great power for harm, as well as for good, in doses so small as to be easily taken. The art of the pharmaceutist has made them inoffensive to the taste. Copying the wisdom of the serpent, we inject them under the skin, beyond the power of a perhaps outraged nature to reject them. The minuteness of the medicinal dose of some of these active principles would have been called almost infinitesimal by the physician of fifty years ago. There can be no question that both in the number and potency of our drugs, we are far in advance of our fathers. So far, we justify the views of the community as to the importance of drugs.

In Article V of our Code of Ethics we read: "But a physician should lend his influence to establish a distinct line between the regular practice of medicine and the practice of quackery, and should avoid any act which might tend to weaken such a distinction either in the professional or in the public mind."

Do we observe this rule, or do we tolerate or even sanction methods of using drugs which violate it?

Until within a few years, new drugs were brought to our notice through regular channels. We read of them in reputable journals. Men, whose names gave weight to their opinions, recorded their experience of them. They were discussed in medical societies, and their power for harm as well as for good was fully and fairly stated. Pharmaceutists of good repute prepared them, and briefly advertised their readiness to supply them. The advancement of medical science, the improvement of the medical art, were paramount considerations. The distinction between the ways of regular medicine and quackery was so sharply defined that no one could mistake them.

In these days, new customs have arisen. The pharmaceutist no longer contents himself with providing the profession with the drugs which its experience approves. He aims to direct the medical art. He proclaims the virtues of new drugs, ignoring their dangers. He vaunts the superior qualities of his own wares. Imitating the business methods of his quack rivals, he scatters his circulars broadcast among the profession, containing promises of cure and certificates of results which would do credit to the advertising agents of the rival Sarsaparillas. Let me read a specimen of the therapeutic literature which they so freely bestow upon us;

"When Papoid is applied to the diphtheritic membrane, four distinct though allied effects are observed. That it seems to have a penetrating property which is exerted with such rapidity that when once really applied no amount of washing of the parts will remove it.

"That in a few hours the membranes are dissolved or detached, and do not re-form, because

"The bacteria of the disease are also destroyed.

"The formation of the specific poison or 'toxalbumen' of diphtheria is arrested, and abnormal bodily temperature falls.

"The removal of the morbid growths from the throat relieves at once the embarrassment of respiration, and in a large majority of cases a complete cure is effected."

Many other useful properties of this medicine are set forth. The inferiority of pepsin is asserted. Not to be outdone by the quack, the case of a "blind ischio-rectal fistula of twenty years' standing" is related:

"This case had been operated upon repeatedly, and treated by some of the best men in the country. All treatment had failed. I had operated upon and treated the case for about a year, and had given it up as one beyond my ability to manage. What I am about to state may seem somewhat startling, but it is none the less true. After proper preparation of the fistulous tract, one injection of Papoid effected a cure."

Here the writer's conscience seems to have pricked him, for he adds, "At least it has been well for about two months." [3]

Having, by such means, brought us into a state of "expectant attention," he follows up his communications by a personal interview. His agents, men who have some knowledge of medicine if he can get them, enter our offices with the assurance of "drummers" in a country grocery. We are treated to long lectures on therapeutics if we will listen to them. Samples are spread upon our tables until our rooms look like the commercial travellers' apartment in a hotel. We are told of the good results their remedies will secure; that we cannot afford to be without them; that our neighbors have ordered a supply; and that, if we do not wish to be behind the times, we must also give them an order.

Leaving a sample for trial, a two-ounce bottle of cod-liver-oil emulsion, perhaps, they depart, to be followed in quick succession by their rivals, who extol the virtues of their own preparations, and point out the defects of those of their predecessors.

There is one striking feature both of their literature and their lectures. Their medicines are always successful. A few days ago, I called the attention of the agent of one of the oldest firms in the country to this fact. "We have no use for unsuccessful cases," was his frank reply.

Not satisfied with copying the methods of the quack, they imitate those of the educated physician. So-called medical journals, marked sample copies, come to us with the regularity of those we pay for. They contain a few articles of merit, copied from some regular journal, but consist almost entirely of advertisements and testimonials recommending the medicines of some manufacturing firm, "A splendid remedy," "A grand combination," "I would not be without it for any consideration," "Send me a dozen bottles." Who does not know this yellow-covered literature of modern medicine?

But these enterprising business men do not stop here. Their money buys the advertising pages of some of our best journals. Let me read some specimens of their art:

"PONCA COMPOUND. Uterine alterative. Exercises a specific alterative action on the uterine tissues, a general tonic influence on the pelvic organs; has a tendency to absorb plastic deposits, to regulate the vascular supply, to relieve congestion, to tone up the nerve forces, to encourage persistalsis of the bowels, and to remove spasmodic conditions. 100 tablets mailed on receipt of $1.00."

"FEBRICIDE, the only complete antipyretic of the materia medica. It sustains the patient, it reduces the temperature, it kills the fever. A restorative of the highest order. A powerful anodyne. Invaluable in malarial dis-

[3] Papoid Digestion, etc. Johnson & Johnson, manufacturing chemists, 92 William Street, New York.

eases. A positive remedy for rheumatism and neuralgia. A specific for *la grippe* and pneumonia. The national antipyretic."

"Dr. Borst's PYROLIGNINE, the new 'wood tar' product. Antipyretic, anodyne, nervine. Reduces temperature. Subdues pain. Restores nerve power. No secondary effects. A remedy of pronounced value in acute inflammatory fevers . . . and all affections in which fever, pain and restlessness, alone or combined, are to be governed."

"LIQUEUR DE LAVILLE. A prompt, tried and infallible specific for gout in all periods of the attack. Dose, one to three teaspoonfuls daily. Professor Brown-Séquard, at a meeting of the Paris Society of Biology, October 15, 1887, said: 'Laville's well-known remedy acts marvellously well in gout, in witness of which I cite the following circumstance which occurred under my own observation. Dr. Fleury, of the French Faculty, and also author of several works on hydrotherapy, had an attack of complete paralysis of the right side, with anæsthesia and aphasia. Precursory symptoms having appeared on the night before, he directed that in case he would be unable to read or write, a large dose of Liqueur de Laville should be given to him, provided I saw no objection to it. I assented. Two hours afterward, all symptoms of paralysis had disappeared."

Thinking it worth while to investigate this remarkable preparation, I wrote to the firm advertising it, for its formula. The answer was as follows: "We are sorry to say we cannot give you the formula of 'Laville's Liquor' exactly; have been informed that it contains colchicum and colocynth; from practical experience we know it to be a very useful remedy for Gout and Rheumatism."

"WHEELER'S TISSUE PHOSPHATES. . . . As reliable in dyspepsia as Quinine in ague. . . . It renders success possible in treating chronic diseases of women and children, who take it with pleasure for prolonged periods, — a factor essential to maintain the goodwill of the patient. Being a tissue constructive, it is the best general utility compound for tonic restorative purposes we have; no mischievous effects resulting from exhibiting it in any possible morbid condition of the system."

"'To lessen the fever and strengthen the heart is the first duty.' — *Fothergill.* FEBRINA TABLETS lessen the fever gradually with absolute safety. CACTINA PELLETS strengthen the heart safely with absolute certainty."

These quotations are not taken from the Sunday newspapers, as you might infer, for nothing in those papers exceeds them in impudent claims to marvellous powers. They are copied from the advertising pages of a single issue of the *Boston Medical and Surgical Journal.*[4]

Made bold by success in this field, one firm has thrown off the mask, and asserts its claim to lead in the art of medicine. In an advertisement in the same journal, we read:

"In medical practice there are many 'hard questions' arising daily. The busy practitioner is settled in his own mind. Frequently, however, he has not analyzed the reasons leading to his conclusions. *Merck's Bulletin* does the thinking, the analyzing, the proving. It gives him a reason for the faith that is in him. It covers the entire field. . . ."[5]

It is not so strange as it appears that our community does not discriminate more carefully between the educated physician and the charlatan. Such material as I have brought to your notice may be, and doubtless is, used with good effect by the quack. Laid before a committee of our legislature, when a bill to regulate the practice of medicine is before it, I cannot wonder that the report is, "inexpedient to legislate." By tolerating such methods we endorse them, and thus violate both articles of our Code of Ethics, from which I have quoted.

As to the conduct of our medical journals we have the remedy in our own hands. It may be that the editors cannot control the advertising pages. It may be that the publishers would lose money, if such advertisements should be excluded. The subscribers can make an effective protest, if they choose to do so.

Let me not be understood as condemning all advertisements of drugs, or all communications of the pharmaceutist to the physician. There are some firms whose publications are always welcome, because they are not inspired solely by the desire for gain. But there can be no question as to the evil effects of such methods as I have named.

According to Hippocrates, the medical art began with the discovery that food which is good in health is hurtful in disease: "For the art of medicine would not have been invented at first, nor would it have been made a subject of investigation (for there would have been no need of it), if, when men are indisposed, the same food and articles of regimen which they eat and drink when in good health, were proper for them, and if no others were preferable to them."[6]

Observation and experience soon led to the use of drugs. But then, as in the day of Hippocrates, and at the present time, "experience is fallacious, and judgment difficult." The great master dispelled the clouds of ignorance and superstition which had so long hindered its progress, and placed the art of medicine on the secure foundation of accurate observation and sound deduction. He recognized the healing power of nature as the corner-stone of our art. He taught the self-limited nature of many diseases. The crude humor became concocted in due season, and at fixed periods was expelled by various channels. While drugs were of use at certain stages, the critical discharge could not be interfered with safely. To remove the cause of the ailment, to put the sick man under the most favoring conditions for recovery, were the essentials of his practice of the medical art. Drugs held a subordinate place. In his reports of cases, which would serve as models for the medical writer of to-day, hardly any mention is made of treatment. Had the successors of this great man followed in his footsteps, the art of medicine would be as near perfection as our knowledge would allow.

But the inductive method was too slow in its movements. Theory soon gave birth to systems of medicine, which, ignoring or undervaluing the power of nature to heal disease, asserted the curative action of drugs. One theory flourished, soon to be overthrown by another, differing from it only in the kind of drugs, or the mode of using them. At intervals a man appeared who tried to lead his fellows into the ways of rational medicine. Sydenham revived the inductive methods of Hippocrates, and impressed upon his age the doctrine of the vis medicatrix naturæ, and the duty of the physician to follow its teachings. Again, systems, the offspring of theory, pass in quick succession across the stage of history. One of these, fantastic in its conception, exceeding all others in its reliance upon drugs, survives and flourishes at the present day. Always having its strongest supporters among the educated

[4] August 11, 1892.
[5] September 1, 1892.

[6] The Genuine Works of Hippocrates (Sydenham Society), vol. i, p. 162.

classes, its success was, and is, a protest against the use of powerful drugs in effective doses, in the present state of medical science. However strongly its patrons may declare their belief in the efficacy of its infinitesimal doses, their common-sense teaches them that the tenth attenuation of nux is safer than the thirtieth of a grain of strychnia.

The discourse of Jacob Bigelow, read to this Society nearly sixty years ago, and the work of Sir John Forbes on "Nature and Art in Disease," marked a fresh revival of rational medicine. This Society took a prominent part in this movement. From this platform have come protests against the abuse of drugs which have an application to the present day.

For many years after this revival, the rational method of treating disease was the prevailing one in this community. As defined by Bigelow, whose discourse above mentioned did so much to establish it, it "recognizes nature as the great agent in the cure of diseases, and employs art as an auxiliary, to be resorted to when useful or necessary, and avoided when prejudicial."[7] Once more more our art was brought back to the path marked out by its founder.

(To be continued.)

Original Articles.

FORCIBLE CORRECTION OF ANGULAR DEFORMITIES OF THE KNEE, WITH A REPORT OF CASES.[1]

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

In any inflammation about the knee-joint, in which there is muscular irritation, the leg flexes; and if this condition be kept up for any length of time, the head of the tibia is drawn backwards, so that the normal relations of the articular surfaces are lost. The knee is flexed and the tibia subluxated backwards.

The cause of this double deformity lies in the direct insertion of the posterior thigh muscles, and in the method of application of the power of the Quadriceps group.

At times rotation of the foot and leg outwards is seen in connection with these other deformities. This is probably due to the fact that the Biceps tendon is inserted far out upon the head of the fibula, and consequently has a longer lever upon which to act than the inner Ham-string group, which antagonizes the Biceps in rotating the leg.

The treatment of these deformities by means of force suddenly applied is not new; nevertheless, from a limited experience, I am confident that the method has received too little attention, and that patients are allowed to go without operation and to remain cripples, or else more serious operations are performed than is necessary. This lethargy undoubtedly is due partly to an incomplete understanding of the operation, but still more because of the faulty apparatus for such use which we have had at our command.

It is with the hope that by a free discussion here to-night we may arrive at a better understanding of the subject, that I present this paper, and offer the deductions which I have made.

[1] Read before the Orthopædic Section of the New York Academy of Medicine in New York, May 19, 1893.

[7] Brief Expositions of Rational Medicine, by Jacob Bigelow, M.D., Boston, 1858, p. 27.

Clinically, as these cases are seen, they group themselves pretty definitely into three classes:

(*a*) Those that are seen during the acute or subacute stages of the disease, in which the deformity is maintained entirely by muscular spasm.

(*b*) Those in which there is complete bony anchylosis, as the result of extensive osteo-arthritis.

(*c*) Those in which the malposition is maintained by adhesions in or about the joint, as the result of old arthritic or peri-arthritic disease.

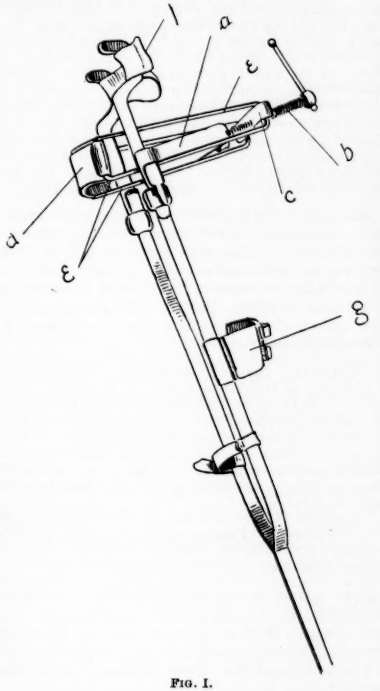


FIG. I.

The first two classes are dismissed entirely, as forcible straightening should not be considered in their treatment. In the first class simple continued extension, with complete immobilization of the joint, will be found to be all that is necessary; while, in the second class, some bone operation, such as excision or osteotomy, will be required. Forcible correction of the deformity in either of these groups would do harm. In the first, the acute trouble would be increased, while in the latter, fracture of the bones, with laceration of some of the soft structures would result.

The third class, which really represents the intermediate position between the other two, includes all of those cases in which the malposition is maintained by fibrous adhesions, without regard to the original disease, whether tubercular or otherwise. If the adhesions be slight, they can be broken up with the hands, and the deformity corrected; but if, as is usually the case, the adhesions be firm, the correction is a

very different matter, and mechanical appliances become necessary.

In a paper which was printed in the Boston *Medical and Surgical Journal* of December last, I described

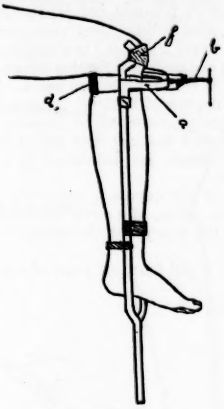


Fig. II.

an apparatus (Figs. I and II) for use in the correction of such deformities. It is a modification of an apparatus, devised several years before, by Dr. E. H. Bradford; the modifications being made to make the apparatus adjustable, to make the application of the after this the apparatus is applied, with the leg flexed. The posterior band, *d*, is then screwed forward; and after as much force has been applied as seems prudent, the leg is straightened as much as possible, by means of the long lever handle, the power being applied intermittently. The apparatus is then taken off and the leg again manipulated with the hands, to still farther break up the adhesions; after which, with the apparatus, the complete correction is attempted. In a mild case one application may be all that is required, while in others several applications (at one sitting) may be necessary before the position is entirely satisfactory.

At times, when the apparatus is finally removed, the head of the tibia drops back and cannot be held in place, even though the leg be straight, because of the firm contraction of the Ham-string tendons. This may be overcome by division of the tendons, or what was better in one of the cases, the leg was put up slightly flexed, enough to relax the contracted parts, and the dressings allowed to go undisturbed for one week. At the end of that time the tendons had relaxed so much that the leg could easily be straightened, and the correct apposition of the bones maintained. During the operation, the rotation of the leg, which is due to one condyle of the tibia slipping farther back than the other, can be corrected very easily, by simply rotating the apparatus so as to bring the greatest pressure upon the condyle that is posterior. If this last deformity be allowed to remain, it not only produces an awkward gait, from the turning out of the foot, but also, from the posterior position of the outer condyle of the tibia, a more or less marked knock-knee is produced.



Fig. III.



Fig. IV.



Fig. V.

power more easy and more under control, and to have the counter-pressure so directed that no damage could be done to the femur. Its mechanical principles are simple, and its adjustment and use is not difficult.

The operation, which is always performed with the patient anæsthetized, may be briefly described as follows: First, the adhesions are broken up as much as possible with the hands only (this in some cases means a good deal, and in others practically nothing); and

At times, however, the knock-knee is due to an elongation of one condyle, as a result of the disease, and a Macewen osteotomy may be necessary; but it is best to wait a few weeks, at least, as in one of the cases in which this deformity was well marked, it entirely disappeared without operation, evidently being due to an old inflammatory deposit on the inner side, which was absorbed.

The after-treatment is simple. A plaster-of-Paris

bandage is applied at the time of the operation, and is not disturbed for one or two weeks; after which the patient is allowed to go about upon crutches, the knee being fixed with the plaster bandage, or, what is better, with a Thomas knee-splint. In a few weeks the apparatus is omitted at night, thus favoring the establishment of motion in the joint; but while the patient is up and about, the splint or some protective appliance should be worn, for from six months to a year.

The pain, which is surprisingly slight, can usually be controlled by the salicylates. Morphia, of course, is to be used if necessary.



FIG. VI.



FIG. VII.



FIG. VIII.

The following four cases have been operated upon since the paper of last December was published; and in each case the apparatus, figured above, was used.

CASE I. A young woman, sixteen years of age. When thirteen months old, the right leg "drew up," and it has remained in that position ever since.

Figure III represents the position of the leg at the time of entrance to the Massachusetts General Hospital, in December, 1892, flexed to a right angle, with marked subluxation of the tibia, and with only a few degrees of motion in the joint. There was considerable cicatricial tissue in the Popliteal space, but little or no bony thickening.

She was operated upon, and the position corrected without much difficulty. In ten days she was up in a wheel-chair, and was about on crutches a week or two later wearing a caliper splint.

Her condition at the present time, six months later, is best understood from the accompanying cuts (Figs. IV and V), which represent the leg straight, and also flexed to show the amount of voluntary motion that it is possible; almost ninety degrees.

CASE II. A boy eight years of age. Six weeks before being seen at the Boston City Hospital, in December last, the patient received a wound of the knee-joint, in which the patella tendon was divided. The wound had been neglected, and as a result of the suppuration which followed, the joint structures were badly disorganized. When first seen, the tibia had slipped back, as the result of the absence of the anterior ligaments and tendon, so far that there was scarcely any articulation between the two bones. There was about twenty degrees of flexion. After waiting some time for his general condition to improve, the operation was performed and the tibia drawn forward into place. The position was maintained by a plaster-of-Paris bandage.

The result in this case is a useful leg, but with a stiff knee-joint. This, of course, was expected from the nature of the injury and the subsequent suppuration.

CASE III. A girl fourteen years of age. In January of this year the patient entered the Massachusetts General Hospital, with the leg flexed about forty-five degrees (Fig. VI); the deformity having existed for twelve years. There were several degrees of flexion possible, but extension was restricted, as is shown above, and this limitation of motion was evidently due largely to the position of the patella, which was firmly adherent to the femur.

With the correcting appliance the leg was straightened without difficulty; and as the force was applied, the adhesions between the patella and the femur gave way, allowing free motion between these bones.

The patient was up in a chair the second day after the operation, and a few days later was about on crutches.

At present, about six months later, the leg is straight, as is shown in Fig. VII, and voluntary motion is possible to the position shown in Fig. VIII.

CASE IV. A woman twenty-one years of age. In December of last year the patient entered the Boston City Hospital, and gave the following history. Eleven years previous, she fell striking the right knee. This

was followed by an abscess which opened just below the patella, and from which there has been a slight discharge ever since. At the time of the appearance of the abscess the leg "drew up," and has remained in that position until now. At the time of entrance to the hospital, it was flexed to about a right angle, and subluxated as is shown in Fig. IX. There were only a very few degrees of motion possible.

On December 21st, Dr. Bradford opened the sinus

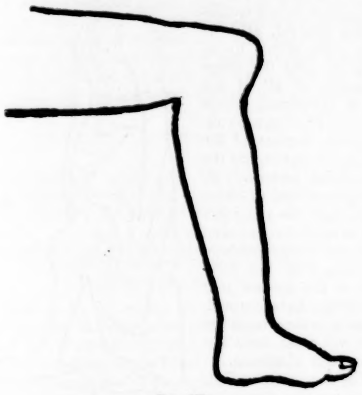


Fig. IX.

below the patella, and removed with a curette, a large amount of dead bone from the head of the tibia. The cavity remaining was about the size of a small lemon. At this time, the correcting apparatus was applied, and the leg partially straightened; but because of the danger of fracturing the tibia in its weakened condition, the correction was not completed.

Two months later the cavity in the tibia having filled up, the apparatus was again applied and the leg fully straightened.

At the present time the patient is walking about, wearing a Thomas caliper-splint, with the leg straight, as is shown in Fig. X, and with several degrees of voluntary motion (Fig. XI). The pain which had been constant before the operation has entirely disappeared.

I am indebted to Dr. C. B. Porter for permission to see Cases I and III, to Dr. M. F. Gavin for Case II, and to Dr. E. H. Bradford for Case IV.



Fig. X.



Fig. XI.

I wish, also, at this time, to give a later report of one of the cases of the December series. The patient was a girl sixteen years of age, in which the deformity had existed for eight years before the operation. It is now a year since the leg was straightened, and all apparatus has been omitted for about two months. She walks well, there being enough motion in the joint to prevent the marked limp common with a stiff knee, and there are no uncomfortable symptoms. Fig. XII shows her condition before operation, Fig. XIII, the leg straight, and Fig. XIV the amount of voluntary free motion.

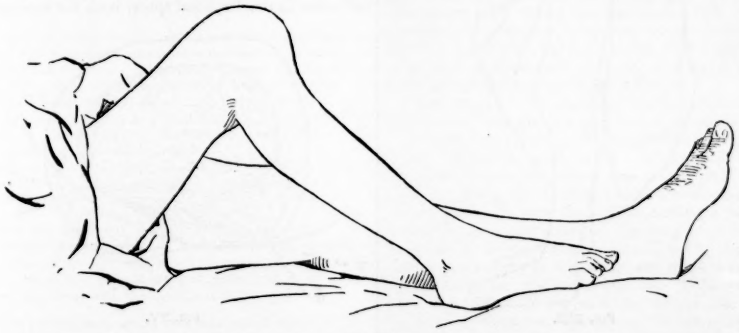


Fig. XII.

In considering these cases, Case I seems to be worthy of special attention, and is of interest as a

physiological experiment as well as a surgical result. The fact that a joint can be put out of use for nearly fifteen years, and then restored to use with very nearly the normal amount of motion, is not only a matter of interest but of surprise. To be sure, the original disease had been largely in the tissues about the joint, judging from the position of the cicatrices; but even where there has been no joint injury or disease, as in fractures of the long bones — in which it is necessary to confine the adjacent joint for a long time — it has always been supposed (except for Dr. Phelps's experiments on dogs) that the functions of the joint would be seriously impaired, due to the formation of fibrous adhesions inside of the capsule. In this case, in one week from the time of the operation there was nearly normal voluntary motion without pain; at least strongly suggesting that no intra-articular changes had taken place.



FIG. XIII.

The results in the other cases need no special comment; the illustrations represent their condition better than any verbal account.

In calling attention to this treatment it is to be understood that the original cause of the deformity is of little consequence, and that whether it be rheumatic, gonorrhœal, or tubercular; or whether the disease has been confined to the joint or to the structures about the joint, the deformity can be corrected as thoroughly and without much more danger, in one case as in the other. In the tubercular cases a considerable interval, at least two years, should be allowed after the disappearance of all of the acute symptoms, before the correction be attempted, because of the danger of starting up the tubercular process. In the gonorrhœal or rheumatic cases the apparatus can be applied at any time where it is reasonable to suppose, from the duration of the disease, that adhesions have formed. Usually in these cases the pain will cease with the restoration of motion.



FIG. XIV.

The dangers attending the use of the apparatus are very slight, if its principles are understood and ordinary precautions are used.

In the acute cases, and in those in which there is bony anchylosis, its use is contra-indicated, for reasons stated above. The danger of lacerating the vessels and nerve in the Popliteal space, from the application of so much force, is very slight. As was shown in the paper before referred to, the head of the fibula, and the inner condyle of the tibia act as buttresses; and upon these points the pressure is applied, while the vessels lie deep in the muscles entirely protected, as is shown in Fig. XV. In cases of extensive peri-articular disease behind the joint, it would be better to straighten the leg gradually, gaining a little with each operation, rather than to correct it at one sitting; in which case the vessels might be lacerated, from being involved in the old cicatrix. This precaution should

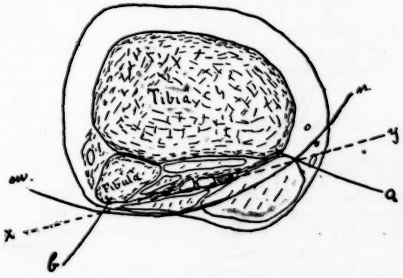


FIG. XV.

also be taken in elderly persons in which atheromatous changes in the vessels are to be considered.

CONCLUSIONS.

A special apparatus is presented for the correction of the angular deformities of the knee in which there is fibrous anchylosis. Five cases are reported in all, of which the ultimate results, as to usefulness of the leg, are very good. One case, in which the deformity had existed almost fifteen years, has nearly normal motion in the joint. One case is reported in which all apparatus has been omitted one year after operation. In none of the cases has any acute trouble resulted. The operation and the use of the apparatus is not difficult, and the dangers attending its use are comparatively slight.

SUBPHRENIC ABSCESS, WITH SPECIAL REFERENCE TO THOSE CASES WHICH SIMULATE PYO-PNEUMOTHORAX.[1]

BY A. LAWRENCE MASON, M.D.,
Associate Professor of Clinical Medicine in Harvard University; Visiting Physician, Boston City Hospital.

(Concluded from No. 9, page 220.)

This is by no means an exhaustive review of the subject, but there are few individual records of more than one or two cases, and I will refer to some of the more interesting ones as briefly as possible. Bristowe[53] reported two cases in an article on "Abscesses in the Upper Part of the Abdomen"; and more recently Dickinson and Ewart,[54] of St. George's Hospital, have recorded "two cases of perforating ulcer of the stomach with misleading physical signs," one of which, entitled "Perforation, with Supposed Pneumothorax," is similar to others which have been quoted. But the second, "Perforation, with Supposed Pericarditis," deserves attention.

Case. — A chlorotic girl, aged twenty-four years, was admitted with symptoms which were considered those of perforating gastric ulcer. There was pleural friction in the left axilla, and over the præcordia were tenderness and friction sounds which had all the characteristics of those heard in pericarditis. Syncopal attacks. These signs appeared to indicate that in addition to peritonitis and pleurisy there was also pericarditis.

Autopsy: Perforation of the posterior wall of the stomach, with peritonitis, which was almost restricted to the left half of the diaphragm and the upper surface of the left lobe of the liver. The abscess pushed up the left side of the diaphragm, which showed pleurisy on its upper surface. Soft lymph coated the lower parts of the left pleural membrane. *No pericarditis.* The roughened pleural surfaces, diaphragmatic, costal, and pulmonary, had given rise to a friction rub synchronous with the heart's action.

This pleuro-pericardial rub was noted in the original case of Wilks and Barlow, and the mode of causation was then also observed. It also occurs in pneumonia, with pleurisy of the left side, and Flint states that in character this sound cannot be distinguished from the true pericardial friction. But the graver symptoms of pericarditis are casually wanting.

Case. — An interesting case is that of Schenck.[55] A woman was operated on for subphrenic abscess by resection of the eighth rib. Pneumothorax was caused thereby, and the upper surface of the diaphragm was united to the parietes before incision of the abscess to keep the pus out of the pleural cavity. The patient died, however, of sepsis, and at the autopsy transposition of the viscera was found.

Flint, in his *Practice of Medicine*, refers to the observations of Leyden and gives his conclusions, but does not mention having met with similar cases in his own experience.

Gee[56] says: "An abscess below the diaphragm may become partly filled with air and may so raise the diaphragm as to give a tympanitic percussion note over the lower part of the chest, but not the amphoric signs of pneumothorax."

This is evidently an error, which was pointed out by Coupland in the *British Medical Journal*, March 23, 1889, where he reports a case of subphrenic abscess of the right side, with signs of pneumothorax, probably caused by perforation of the vermiform appendix and cured by operation.

As the editor of the posthumous work of the late Dr. Wilson Fox,[57] on *Diseases of the Lungs and Pleura*, Coupland has appended a concise description of the condition now under consideration, reproducing Leyden's plate.

Strümpell[58] had repeatedly seen perforation into the left pleural cavity from gastric ulcer, with septic pleurisy and sometimes pulmonary gangrene. Therefore, he says: "Whenever we meet a case of apparently spontaneous, left-sided empyema, we should at any rate always think of the possibility of gastric ulcer."

In Pepper's *System of Medicine*,[59] in the article by Welch, on "Simple Ulcer of the Stomach," attention is called very clearly to the etiology of the class of cases under discussion, and the conclusions of Barlow and Leyden are quoted. The author also mentions Pfuhl's experiment with the manometer in Leyden's clinic, which goes to show that the pressure in the abscess cavity rises during inspiration and falls during expiration, the reverse being true in the pleural sac. But it is stated that Schreiber[60] has shown that this point does not hold good when the diaphragm moves little, as is often the case in this affection.

Osler[61] says: "The condition of pyo-pneumothorax subphrenicus may simulate closely true pneumothorax."

Vierordt,[62] in speaking of "Subphrenic peritonitis," says: "We understand by this an ichoro-purulent, sacculated peritonitis below the diaphragm. From paralysis, partly also from irritation, the diaphragm is pushed very high into the thorax, causing a marked retraction or compression of the lung of that side. That half of the thorax is broadened, and by the presence of pus and gas in the cavity, one is apt to mistake the condition for pyo-pneumothorax. Peritonitis of this character usually begins at the stomach, as an ulcer, or at the intestine, especially at the vermiform appendix or cæcum. In making a differential diagnosis, we observe whether, in the *status præsens* or in the previous development, there were indications of disease of the lungs, or, on the other hand, of the abdomen; and also whether the lung of the diseased side still performs the motions of respiration."

[1] Read before the Association of American Physicians, Washington, D. C., May, 1893.
[53] Lancet, September 29, 1883.
[54] Lancet, March 7, 1891.
[55] St. Petersburger med. Wochenschrift, April 8, 1889.
[56] Auscultation and Percussion.
[57] A Treatise on Diseases of the Lungs and Pleura. By Wilson Fox, M.D.
[58] American edition, 1887, p. 361.
[59] Vol. ii, pp. 499, 500.
[60] Ueber Pleural and Peritoneal-druck. Deutsches Archiv. f. klin. Med., July 31, 1883.
[61] Practice of Medicine.
[62] Medical Diagnosis, 2d edit., 1892, Stewart's translation.

DIAGNOSIS.

The diagnostic points in these varied conditions have, perhaps, been sufficiently indicated by the foregoing citations and cases, but it seems to me that enough stress has not been laid upon the incompleteness and inconstancy of the signs in "false pneumothorax" as compared with the true, or upon their peculiar localization both above and below the usual position of the diaphragm. The metallic sounds may be loudest at the epigastrium. The adhesion of the lung to the diaphragm and parietes is an important indication of the inflammation below, as is the dry pleurisy which precedes this adhesion. A serous or purulent effusion in the back is misleading, but the patients always appear to be in much worse condition than a simple pleurisy would cause. Diaphragmatic hernia may present similar physical signs, but the history, usually of traumatism, is different.

PROGNOSIS AND TREATMENT.

The prognosis depends almost entirely upon the efficacy of surgical treatment by free incision and drainage, although cases of spontaneous evacuation and cure are not unknown. Tillmanns,[63] of Leipzig, in his article relating to the operative treatment of abscesses resulting from communication between the gastro-enteric tract and the thorax, reports a successful case of thoracotomy in a boy, fifteen years old, in whom a supposed intestinal perforation had caused an abscess which found its way through the diaphragm. Feculent-smelling fluid, which contained food, was evacuated from the right pleural cavity and recovery ensued. Tillmanns, after an elaborate discussion of twenty-two cases, expresses the opinion that the cure of subphrenic abscess may be effected by antiseptic drainage when the suppuration is not too extensive, if it remains shut off from the peritoneal cavity, and if the intestinal or stomach perforation heals spontaneously.

That the gastric ulcer may heal spontaneously without external drainage of the abscess is shown by the fact that cicatrization was observed in Leyden's case mentioned above, and in the following, in which the pus escaped through the bronchi or into the pleural cavity.

Case. — Southey [64] reports a case of prolonged pain and vomiting, with tender tumor at epigastrium. Hæmatemesis and melæna. Later, cough and fetid expectoration. Cancer was suspected. Autopsy showed a large abscess between the diaphragm and the left side of the liver, the stomach, and the spleen. Perforation of diaphragm into lung and pleura. A sinus from the abscess led directly to the cicatrix of a round ulcer in the posterior wall of the stomach. No perforation of stomach remained.

Case. (Rigal.)[65] — Man, fifty years old. Sudden attack of epigastric pain, with swelling. Later, signs of pneumothorax. At autopsy, a large abscess between liver, stomach and diaphragm, and on posterior wall of stomach, 4 cm. from pylorus, two recently cicatrized ulcers.

Other similar cases might be cited. Fenwick mentions five, in which, after death, the perforation was found to have healed. In my case, No. II, the same result appeared to have followed the drainage of the cavity, as the offensive vomiting ceased and great general improvement ensued, but the abscess reappeared on the other side, and the patient died. At the autopsy, the ulcer was found closed.

Perhaps, as has been suggested, distention of the stomach ceases after perforation, and this may promote cicatrization. In any event, such a possibility enables us to form a more favorable prognosis in those cases in which posterior intercostal drainage of the abscess is resorted to, or when laparotomy may be undertaken with a view to sewing up the perforation, but when the ulcer proves to be inaccessible. This, I think, from the evidence of the autopsies I have seen, would usually be the case, the adhesions are so extensive and so dense ; and in all operations the danger of involving the general peritoneal cavity must be considered.

In many of the later reports subphrenic abscesses have been diagnosticated promptly, and the necessary surgical procedures have been resorted to. The record of 100 cases, of which 20 were from American sources, shows 20 recoveries. The first cure in Leyden's clinic was in 1882, and most of the successful cases are those in which the operation was for abscesses in the right side associated with the liver or vermiform appendix. As before stated, I find no case of subphrenic abscess caused by perforating ulcer of the duodenum, in which cure has resulted, or in which the perforation has been found cicatrized after death. In but seven cases, when the abscess was under the left ala of the diaphragm and caused by gastric ulcer, has recovery taken place so far as I am aware. One was reported by Barton,[66] in which the abscess opened into the bowel with a discharge of foul pus, and two other cases of spontaneous recovery are mentioned by Leyden.

Case. — Debove and Rémond,[67] at the Hôpital Andral, report the following: A female, aged thirty-three, had had for three years intense gastralgia, hæmatemesis, and epigastric tympany, which extended over the left lobe of the liver. Tapping evacuated foul pus and air, and laparotomy revealed a large abscess behind the liver, with prolongation toward the spleen. Cure in two months.

The author stated that this was the first recorded cure of this condition. But Von Hösslin,[68] from Ziemssen's clinic, has reported a case in which, from the symptoms and the character of the pus, perforation of the stomach was thought to have existed:

Case. — Female, aged thirty years; cyanotic. Respiration, 60; pulse, 120. Left lower ribs motionless. Heart displaced to right. Resection of seventh rib, anterior axillary line, opened a subphrenic abscess communicating with the pleura through an aperture in the diaphragm. During the next day the patient was livid and collapsed, and seemed at the point of death. But she rallied and recovered in seven weeks. A drainage-tube was pushed up through the aperture in the diaphragm and thus the pleural cavity was irrigated.

Scheurlen's case of recovery after resection of a rib is mentioned above, also Renvers's by puncture-drainage, but these are the only other ones which I have found.

Evidently the chance of life is a poor one under any circumstances when perforating ulcer of the stomach or duodenum is at the bottom of the trouble: but when the abscesses are connected with the liver, the kidney, or the vermiform appendix, the outlook is more favorable. These are mostly on the right side,

[63] Ueber die Communicationem des Magen-Darmcanales mit der Brusthöhle und über subphrenische Kothabscesse. Archiv. klin. Chirurgie, 1881, s. 103.
[64] Medical Press and Circular, November 5, 1879.
[65] Bulletin de la Société Méd. des Hôpitaux, 1874.
[66] Medical Press and Circular, 1890, p. 453.
[67] Des Ulcers gazeux sous-diaphragmatiques par perforation des Ulcères de l'Estomac. Gazette des Hôpitaux, 1890, p. 1150.
[68] Münchner med. Wochenschrift, January 18, 1887.

between the liver and the diaphragm, and of such cases recovery took place in thirteen instances, twice by spontaneous evacuation through the bronchi after appendicitis. Resection of a rib was resorted to in a few of these cases only. In the others a simple incision was made. As was stated above, liver abscess is sometimes cured in this manner and should hardly be included in the present subject.

Usually pleural adhesions prevent the opening of the pleural cavity by the knife, but in some cases the diaphragm has been incised through the pleura with a resulting pyo-pneumothorax. In one such instance an epigastric incision was followed by two posterior openings for better drainage. Clear serum flowed, followed by pus. Pyo-pneumothorax ensued, pyæmic abscesses formed in the brain, and death resulted.

This shows the importance of a low incision. The place should be determined by previous careful explorations at more than one level. In those cases in which there is epigastric tumor, laparotomy and search for the ulcer should be resorted to, but posterior drainage, also, will usually be necessary. I can find no record of a successful procedure of this nature. Fitz[69] relates the case of a woman, aged forty-one years, who came to the Massachusetts General Hospital with severe epigastric pain and a history which pointed to a perforating gastric ulcer. He advised laparotomy, but it was persistently refused by the patient, who died. Autopsy showed an abscess below the diaphragm, shut off by adhesions and containing air. The stomach was adherent to the adjacent organs, and had a perforating ulcer on the anterior wall.

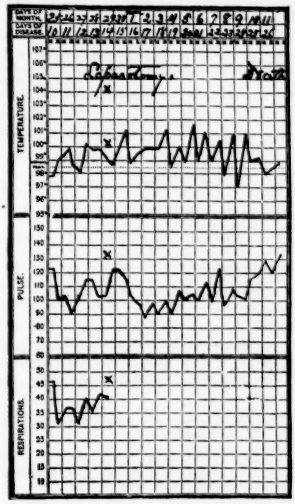
The question of "Laparotomy for Perforating Ulcer of the Stomach" is discussed by Weir,[70] who calls attention to the frequency with which this cause of fatal peritonitis is overlooked. In one case he operated, emptied a subphrenic abscess, and sewed up a round perforation half an inch in diameter in the middle of the anterior surface of the stomach near the lesser curvature. The patient died from collapse, having suffered from peritonitis for four days before she entered the hospital.

Most of the ulcers, however, are on the posterior wall and very inaccessible on account of the adhesions. Under these circumstances, Weir recommends making a good-sized hole in the gastro-colic omentum and trying to examine the posterior wall in this way, or making a direct cut of large size into the stomach itself.

This procedure has once come under my observation in the case of a young woman who for three years had presented the symptoms of gastric ulcer. The pain was so great that she insisted on laparotomy, which had been suggested to her. Dr. Bradford incised the stomach and with the electric light examined the interior, but no ulcer could be found. If it had existed, it had healed. But the operation was entirely curative of all the symptoms.

Thus far the results of laparotomy for gastric hæmorrhage have not been very encouraging, and it is improbable that those for perforating ulcer will be more so. But the chance should be taken.[71] In many instances the patients are so exhausted that a prolonged operation cannot be completed. Weir relates such a case, and one came under my observation this year at the City Hospital, in which laparotomy was performed by Dr. Cheever.

CASE VII (Mason). *Perigastric abscess; laparotomy.* A Russian, aged twenty-two years, entered my service at the hospital with severe epigastric pain. In a few days there was a bulging, flat on percussion, at the epigastrium. The heart was displaced to the left. Subnormal temperature. No vomiting. The aspirating needle withdrew, first a clear fluid of strawberry-juice color from the epigastric area, and then several ounces of offensive pus from a deeper level. Dr. D.



CASE VII.

W. Cheever performed laparotomy. The exploring finger discovered a large cavity, with trabeculæ, adjacent to the stomach, but the condition of the patient was such that further examination was not practicable. He rallied, however, and the abscess cavity was irrigated daily. A discharge of sloughy, purulent material continued, pain did not diminish, and he died from exhaustion in two weeks. There was no autopsy, and the cause of the abscess was undetermined.

CONCLUSIONS.

(1) Subphrenic abscess, so-called, is usually due to a circumscribed peritonitis, but may be retro-peritoneal.

(2) The causes are: Perforating ulcer of the stomach, duodenum, or vermiform appendix, rarely of some other part of the intestinal tract; hepatic, peri-hepatic, peri-splenic, and peri-nephritic inflammation; occasionally, gall-stones, cancer, or echinococcus cyst. Sometimes the cause cannot be determined.

(3) Air-containing abscess below the diaphragm, through communication with the gastro-enteric tract, may give rise to signs resembling those of pyo-pneumothorax.

(4) Subphrenic abscess, when dependent upon perforation of the gastro-enteric tract, usually results fa-

[69] Boston Medical and Surgical Journal, 1890, p. 583.
[70] International Medical Magazine, February, 1892.
[71] See articles by W. Nissen, St. Petersburger med. Wochenschr., 1890, lxiv, s. 516; and by Simon and Barling, British Medical Journal, January 9, 1892.

tally. But the prognosis is more favorable in those cases which follow perforative appendicitis than in those which result from gastric or duodenal perforation.

(5) The perforating gastric ulcer, which is the cause of the subphrenic abscess, may heal spontaneously after the evacuation of the abscess, and early diagnosis would greatly reduce the hitherto reported large mortality.

(6) Hepatic, peri-hepatic, or peri-nephritic abscess, which presents itself under the arch of the diaphragm, may often be successfully treated by intercostal incision and drainage.

BIBLIOGRAPHY.

The foregoing review is by no means complete and further references are appended as bearing on the subjects considered. Doubtless other articles of interest have been overlooked.
Audreoud. Rev. Méd de la Suisse Romande, Genéve, October, 1890.
Bernheim. Revue Méd. de l'Est, December 15, 1878.
Biach. Zur Ætiologie des Pneumothorax. Wiener. med. Wochenschrift, 1880.
Bossi. Gaz-tta Med. Italo-Lomb , 1886, No. 47.
Bruni. Spallanzani; Modena, 1883.
Bruzelius and Key. Virchow-Hirsch Jahresbericht, 1876, ii, s. 225.
Calder. Northern Lancet, Winnipeg, 1889-90, iii.
Chauffard. Gazette des Hôpitaux, 1871, p. 94.
Delahousse. Des Maladies chirurgicale du Diaphragme, Paris, 1885.
Dunn. Northwestern Lancet, St. Paul, March 15, 1890.
Fischer. Deutsches Archiv f klin. Med., Bd. xxvii.
Fräntzel. Ziemssen's Handbuch, Band iv, s. 390.
Goltenburg. Internat. klin. Rundschau, Wien, February 8, 1890.
Hallin. Schmidt's Jahrb., Band cxix, s. 37.
Hoffman. Virchow's Archiv, 1868, xlii, s. 227.
Laveran. Rec. de mém. de Méd. milit., 1869, xxii.
Lenoir. Bull. de la Soc. Anat., Paris, 1890, p. 248.
Meyer, A. Die Krankheiten des Zwölffingerdarms, Düsseldorf, 1844.
Maylard. Glasgow Med. Journ., 1886, p. 241.
Mehliss. Die Krankheiten des Zwerchfell's der Menschen, 1845; Eisleben, G Reichert.
Occhini. Gazz. Med. di Roma, 1883, ix.
Poensgen. Archiv. f. klin. Med., 1880, xxvi.
Richards. North American Med.-Chirug. Rev., September, 1859.
Sänger. Archiv für Heilkunde, 1878, s. 247.
Tiling. St Petersburger med. Wochenschrift, 1882, vii, s. 85.
Wahlen. Upsala Läkaref. Förh., 1884, xix.
Walther. Bulletin de la Soc. Anat., Paris, 1890, pp. 441, 466.

IXODES OR TICK.

BY HAROLD WILLIAMS, M.D., BOSTON.

ALLUSION is sometimes made in medical literature to the ixodes or tick. As they are not often met with in our city clinics, I have ventured to give the following description:

Duhring, in his "Diseases of the Skin," says of them: "There are several species of tick which are met with in our woods and which are liable to attach themselves to the human skin. They insert their proboscis and head deeply into the tissues and suck blood until they not infrequently swell up to many times their natural size. They should never be extracted with violence, but should be induced to relinquish their firm hold upon the skin by dropping upon them some oily substance, as olive oil or one of the essential oils."

Ticks are extremely numerous in Nantucket. I have removed as many as forty from my horses' legs after a single drive. They crawl up the legs of the horses and if left to pursue their course unimpeded, will bury their heads in the thin skin in the neighborhood of the tail or in the interior of the ears. In dogs they usually penetrate the auditory canal, though they sometimes attach themselves in other places. In human beings they almost invariably crawl into the hair at the back of the head or neck, but they sometimes penetrate the ear, where they cause excruciating pain with their hooked feet. They attach themselves to the skin by their jaws and burrow beneath its surface. As they then anchor themselves by their many-barbed tongue they are extremely difficult to remove and upon the employment of traction the body becomes detached leaving the head in the skin to be cast off by suppurative process.



No. I. No. II. No. III. No. IV.

The accompanying illustrations, which are according to exact measurements, were made from a tick which had attached itself to a dog belonging to Alexander Pope, Esq., and were drawn by that artist himself. No. I is a tick as usually seen. No. II is the same tick after five days' feasting upon the thin skin near the ear of Mr. Pope's spaniel. Nos. III and IV are ventral and lateral views of the same engorged tick.

When a tick has penetrated the ear it can be readily and painlessly removed by the use of a ten-per-cent. solution of hydrochlorate of cocaine, olive oil and forceps, in the order mentioned.

Medical Progress.

RECENT PROGRESS IN THORACIC DISEASE.

BY GEORGE G. SEARS, M.D.

(Concluded from No. 9, page 222.)

CROUPOUS PNEUMONIA COMPLICATED BY PURPURA HÆMORRHAGICA.[7]

JAWORSKI has reported the case of a man, twenty-seven years old, who while engaged in making an excavation was seized by a severe chill soon followed by profuse bleeding from the nose and mouth, and loss of consciousness. On the following day the hæmorrhage was repeated several times and in addition pain in the right side of the chest and general weakness and depression manifested themselves. On examination the evidences of croupous inflammation of the middle lobe of the right lung were detected. The skin was rather pale and somewhat moist. Upon the lower part of the body from the umbilicus downward were numerous subcutaneous hæmorrhages varying in size from a pin-head to a lentil. There were also hæmorrhages beneath the conjunctiva into the sclera, and beneath the mucous membrane of the inferior surface of the tongue and lower lip. Neither the gums, palate nor larynx presented any changes or lesions. The tongue was dry and covered with a coating with which coagulated blood was mixed, blood constantly trickled from the nose and there was considerable frothy blood-stained expectoration. The temperature was elevated;

[7] Wien. Med. Presse, xxiv, 3, p. 84; American Journal Medical Sciences, April, 1893.

the pulse full, tense, regular, quickened, the respiration accelerated. The urine was blood-stained and contained red corpuscles. The patient grew rapidly worse and died at the end of five days with signs of exhaustion. The history and the symptoms excluded phosphorous poisoning, arsenical poisoning, scorbutus and typhus fever. No bacteriological investigations were made. The post-mortem examination confirmed the diagnosis of croupous pneumonia complicated by purpura hæmorrhagica.

CREASOTE IN PHTHISIS.[8]

Albu says that we have only one criterion by which we can judge clinically of the effect of a drug upon the progress of phthisis and that is the fever, upon which creasote has no effect; nor among the large number of cases upon which he tried the drug were there any in which the tubercle bacilli permanently and appreciably diminished, while a diminution in their virulence could not be proved by laboratory experiments. He has seen "Phthisis treated with large doses of creasote pursue its course with all the protean changes with which he is familiar; at one time astonishing improvement with permanent subjective sense of well-being; at others, even in the beginning of the disease, a rapid downward course; he has watched the formation of cavities and the progress of amyloid degeneration, the onset of pneumothorax and even death in various stages of the disease"; in other words, he could not see that the course of the disease was appreciably modified, nor was any influence exerted upon the tuberculous process in the lungs. Nevertheless, it is a very useful drug for its symptomatic treatment, as for most patients it appears to be a good expectorant, for others a good stomachic, and it often seems to exert a tonic influence; cure, however, is not obtained by its use.

THE PROGNOSTIC SIGNIFICANCE OF FEVER IN PHTHISIS.

Strümpell[9] considers the prognosis of phthisis in its special relation to fever, which, as a symptom, has the greatest prognostic significance, though other points must be considered, such as the environment of the patient, his heredity, his general make-up, the presence of anæmia or a history of alcoholism. Age is an important factor, as between twenty and thirty the course is apt to be much more rapid than in later life. The previous progress of the case must also be taken into consideration. Encapsulated tuberculous processes occasion no rise of temperature. Although tuberculosis can of itself produce fever, great importance must be attached to secondary infections and diseases, as apart from the symptoms produced by them they render efficient aid to the further extension of the tuberculous process. With fever such secondary processes are almost always present, and thus lead to the spread of the disease.

The author classifies the temperature thus: (1) Subfebrile, with slight evening rise. This form is comparatively benign. (2) Intermittent. Here the disease is progressive, in proportion to the rise in the evening temperature. (3) Remittent, a not very infrequent form in florid phthisis. (4) Continued, seen in the beginning of sudden and acute forms with hardly any abnormal physical signs. After two or three weeks it becomes remittent or intermittent. Such cases usually run a rapid downward course. (5) Irregular. This is generally seen in the third stage, and the cases are mostly unfavorable, especially if high evening temperature and periods of continued fever appear. For months, perhaps, the fever has been hectic, and then it becomes much more irregular. There is then often an increase in the local manifestations of the disease, and in a few weeks death supervenes. Collapse temperatures are also very unfavorable, but there are, of course, exceptions to all these rules.

In speaking of the therapeutics of consumption, he says that the value of remedies can only be tested by their effect on the temperature. He was unable to prove that tuberculin ever caused the fever to disappear, and he had never seen any specific effect from creasote. In all such therapeutic questions the greatest experimental pathologist needs the co-operation of the practical clinician.

A CASE OF PLEURAL EFFUSION AT THE RATE OF THREE AND A HALF FLUID OUNCES AN HOUR.[10]

The following case, reported by Hale White, is remarkable for the great rapidity with which the fluid reaccumulated. The patient had ordinary tubal nephritis, together with mitral constriction and regurgitation, and, as is usually the case, there was some fluid in each pleural cavity which had required tapping. Thirty hours after the first aspiration of the right chest, 106 ounces of serum were withdrawn, which must have accumulated within that time as special pains had been taken to remove all the fluid at the first operation. Seventy-eight hours later 120 ounces more were withdrawn and on this occasion there was extreme pain and dyspnœa and great œdema of the neck, which disappeared after the evacuation of the fluid. Thirty hours after this the chest was again tapped and fifty ounces withdrawn. White can only account for this rapid accumulation by supposing that the patient had thrombosis of the large azygos vein before it is joined by that from the left side. He does not consider it conclusively against this supposition that no evidence of thrombosis was found post-mortem, for the patient did not die till eight weeks afterwards, when all signs of thrombosis might have disappeared. Supposing the fluid collected at a uniform rate, after the first tapping of the chest, that rate was three ounces and a half an hour, after the second, one ounce and a half, and after the third about the same. It is also quite exceptional for the distension of the chest with fluid to be so rapid as to cause acute pain, which is no doubt comparable to that felt in the calf in acute femoral thrombosis, and due to rapid stretching of the parts by fluid; also it must be very rare for the pressure of the fluid on the superior vena cava to cause œdema of the neck.

A Foreign Body in the Ear for Thirty-Nine Years. — A correspondent of the *Medical News* reports the case of a patient who complained of occasional pain in the left ear since childhood. Hearing was almost lost and the canal was filled with a hard substance. With some difficulty a large white bean was removed, with the immediate return of hearing. On questioning the patient it appeared probable that the bean had been in the ear for thirty-nine years.

[8] Berl. Klin. Woch., 1892, p. 1300.
[9] Münch. Med. Woch., 1892, Nos. 50 and 51; British Medical Journal, February 18, 1893.
[10] Lancet, March 25, 1893.

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

EIGHTH ANNUAL MEETING, AT WASHINGTON, D. C., MAY 30, 31 AND JUNE 1, 1893.

(Concluded from No. 9, p. 224.)

SPORADIC CRETINISM IN THE UNITED STATES,

by WILLIAM OSLER, of Baltimore.

DR. H. C. WOOD thought, that, although cretinism was a rare disease, yet it was more common than appeared from Dr. Osler's paper, because persons have not reported the cases which have occurred to them. He recalled two very positive cases which he had seen in his own experience, entirely outside of any institution.

DR. J. P. C. GRIFFITH thought that what Dr. Woods had said was probably the case. He had seen a case the past winter which had been brought to the Children's Clinic of the University of Pennsylvania. He asked how old the "baby" was, and was told five years. The parents lived at Lancaster, Pa., which is not a mountainous region. There was no nervous disease in the family, and there seemed to be no way of accounting for the child's condition.

SOME PROBLEMS IN THE ETIOLOGY AND THE PATHOLOGY OF TEXAS CATTLE FEVER AND THEIR BEARING ON THE COMPARATIVE STUDY OF PROTOZOAN DISEASES,

by THEOBALD SMITH, of Washington.

The course of Texas fever may be divided into a first stage (acute), and a second stage (mild or relapse) which may follow the first after an interval of two or more weeks. The first is characterized by a high fever and a rapid destruction of red blood corpuscles, amounting to half a million or more per cmm. in twenty-four hours. The second stage, or relapse, differs from the acute fever in its mild, non-fatal course, its fluctuating temperature and a much slower destruction of red corpuscles.

In the acute fever, the number of infected corpuscles which circulate in the blood is small, and rarely exceeds two per cent. The micro-parasite contained in them is fully developed. In the mild fever, or relapse, the number of infected circulating corpuscles is, as a rule, much greater and it may reach fifty per cent. The micro-parasite, in the mild fever, is always in a very young stage in the corpuscle. The probable explanation of this curious phenomenon is a partial immunity of the affected animal acquired in the acute attack, in virtue of which a retardation in the development of the intraglobular parasite is brought about.

The reaction of the organism of the host in the presence of the invasion seems to proceed along lines different from those which are followed during the course of bacterial diseases. While there is a profound disturbance of the system, this seems to be due mainly to the large amount of débris in the blood, which cannot properly be disposed of by the excretory organs. Inflammatory or chemotactic processes are absent and the degenerative changes may be accounted for without assuming the presence of alkaloidal or proteid poisons originating in the micro-parasite.

An important fact which hitherto has not been brought out in the study of infectious diseases is the indefinite persistence of the micro-parasite, in very small numbers, in the blood of insusceptible cattle from the enzootic territory. Such blood is capable of producing the acute disease in susceptible animals. In other words, a complete symbiosis between an otherwise fatal parasite and the host seems to be compatible with and perhaps necessary to immunity.

This disease is probably transmitted exclusively in nature by an ecto-parasite — the cattle tick (*boöphilus bovis*). This important fact opens an interesting and only partly explored field of inquiry in the transmission of human malarial affections.

DR. WM. H. WELCH was quite familiar with the development of Dr. Smith's work, and was extremely interested in the results. The etiology of Texas cattle-fever has become, through Dr. Smith's researches, probably clearer than that of any other protozoan disease. We now know, not only the character of the micro-organism inside the body of the animal, but also the media of development outside of the body, in the cattle tick. Dr. Smith's paper is an important contribution to science, and is an illustration of the value of governmental aid in solving a problem of both scientific and economic importance.

THIRD DAY. — MORNING SESSION.

THE BACILLUS PYOCYANEUS PERICARDITIDIS,

by HAROLD C. ERNST, Boston.

The material from which the bacillus was isolated was fluid drawn from a case of pericarditis. The fluid contained plenty of tubercle bacilli and this new bacillus. With this new bacillus a long series of tests were made upon a large number of different media and under differing conditions of temperature. The only two organisms with which it is likely to be confounded are the bacillus pyocyaneus of P. Ernst and the bacillus pyocyaneus of Gassard. Every step in the investigation of this bacillus was checked by and compared with cultures of the bacillus pyocyaneus derived from four different sources. Dr. Ernst gave in detail the essential differences, both macroscopic and microscopic, between this bacillus and those with which it has been possible to compare it. As the result of these tests, it appears justifiable to conclude that the bacillus is a distinct variety of organism, resembling in many respects the bacillus pyocyaneus but perfectly distinct from it.

DR. A. C. ABBOTT, of Philadelphia, thought that in the bacillus described by Dr. Ernst, we have another addition to make to the group of green-producing micro-organisms. Some of its characteristics are very different from those common to the ordinary green-pus organism: the essential difference between the organism described by Dr. Ernst and the ordinary *bacillus fluorescens liquefaciens*, being the production of the blue-green color upon which Dr. Ernst lays stress.

DR. SMITH had seen all variations in the color-producing power of the saprophyte, and in some cases the color was a very dark green.

GONORRHŒAL MYOCARDITIS.

by W. T. COUNCILMAN, Boston.

There have always been two opinions held about the secondary infections following gonorrhœa; one that they are due to the accidental infection with other organisms which enter through the lesions in the urethra, produced by the disease. Gonococci have been found by various observers in these secondary lesions. Other observers have failed to find them. The most prominent secondary lesions consist of the various joint affec-

tions, of peri-and endo-carditis, and of inflammation of the neighboring lymph glands giving rise to the bubo. Chronic inflammation of the Fallopian tubes in the female is now very generally regarded as due to a previous infection with gonorrhœa. In a case recently seen at the City Hospital there was an acute urethritis, acute inflammation of the joints and an extensive peri- and myo-carditis. Gonococci were found in all of these places. The lesions in the urethra closely similate those described by Bumm in his experimental work on the disease. The gonococci were found only in the superficial layers of the epithelium. In the sub-epithelial tissue there was marked round-cell infiltration. It appears probable from a general consideration of the secondary infections that they are true infections resulting from the presence of the gonococci. In the cases in which organisms have not been found it is very possible that they were so few that the ordinary microscopic investigation would not reveal their presence. That the affection is not due to the presence of pus organisms is shown from the fact that cultures made from these secondary lesions are so generally sterile.

Dr. Reginald H. Fitz had no recollection of ever seeing a case like the one described by Dr. Councilman. Cases of infection through embolism from urethral disease, especially in consequence of surgical operations are not so very uncommon.

Dr. Alfred L. Loomis reported a case which had been very misleading, due to a mixed infection. The patient had gonorrhœa for four or five weeks and then suddenly developed in endocarditis. Within twenty-four hours he had pains in his joints that had not existed before. A relative in the same house at the same time, came down with diphtheria; and in two or three days after the endocarditis, the man had a diphtheritic spot. Had it not been for the occurrence of diphtheria, the endocarditis would doubtless have been ascribed to gonorrhœal origin.

DISCUSSION ON TUBERCULOSIS.

Dr. Wm. H. Welch reported the results obtained in the experimental rabbits given to him by Dr. Trudeau a year ago. There were three rabbits, each inoculated in the same way with a pure culture of the tubercle bacilli, both in the eye and in the pleural cavity. One was a control animal; another was treated with bacterio-proteid; and the third by the filtrate from liquid cultures of the tubercle bacilli. The control rabbit developed a caseous inflammation of the inoculated eye. It went through the typical changes and developed caseous panophthalmitis; all the media became obscure, the cornea became vascularized, and subsequently there was atrophy of the bulb. The animal treated with bacterio-proteid became very emaciated, developed abscesses and ulcerations of the skin in different parts, and finally died without anything to show for the immediate cause of death except the extreme emaciation. There was extensive caseous disease of the eye, but not quite so extensive as in the control animal. The animal treated by the filtrate was of most interest, because the filtrate is said to possess distinct curative or preventive properties. This case turned out just as Dr. Trudeau might have wished. There was no extension of the tuberculous process. There developed a small, grayish-white, slightly opaque nodule at the upper quadrant of the eye in the anterior chamber, which became adherent to the iris, then grew smaller, and finally just a scar was left, without any caseation and without any secondary tuberculosis in the eye which could be determined during the life or after the death of the animal.

Dr. Whittaker said that from some reports made to a previous session of the Society the impression seems to have gone out that tuberculin was not only useless but for the most part actually injurious. Since that time new light has been shed on the nature of the tuberculous process which shows how laboratory tuberculosis differs from human tuberculosis. Dr. Whittaker has administered tuberculin daily since it was first sent out, both in private and hospital practice, and has never seen any reason for a modification of Koch's first opinion as he expressed it in regard to cases of pure tuberculosis. He has observed that under this treatment there has been a singular and early relief from the depressing action of the disease, first of all, and more so than from any other method of treatment. Although a minority of the cases show an exaltation, a *spes phthisica*, yet in most cases there is a marked tendency to melancholy. After five or six injections of tuberculin, patients experience relief from this condition, and they continue to show this relief until some complication occurs. Patients who only have tuberculosis in its inception, having perhaps a light bronchial catarrh at the apices, or are still in the prephysical state of tuberculosis, where we only make the diagnosis by the discovery of the bacillus, when treated with tuberculin are completely rescued in the majority of cases. It does not take so long a time to effect a cure as is commonly asserted. Most of these cases are rescued in two or three months under careful use of the remedy, and these cases do not fall back into the condition of patients who return home from Colorado improved, who fall victims anew to the disease. Tuberculin is the only specific remedy for tuberculosis. All other remedies act only through the avenues of nutrition and resistance to invasion. Where we have mixed infections, as is the case in the later stages of phthisis, tuberculin does little or no good and for the most part harm. It is the reckless administration of tuberculin in these cases of so-called hectic fever that has brought tuberculin into disrepute.

The following officers were elected for the ensuing year: President, Reginald H. Fitz; Vice-President, Wm. Osler; Recorder, J. Minis Hays; Secretary, Henry Hun; Treasurer, W. W. Johnston; Representative on the Executive Committee of Congress of American Physicians and Surgeons, William H. Welch; Alternate Representative, M. Allen Starr; Councillor, John H. Musser.

Drs. George Dock, of Ann Arbor, and T. M. Rotch, of Boston, were elected to membership in the Association.

Recent Literature.

Hand-book of Massage. By Emil Kleen, M.D., Ph.D. Authorized translation from the Swedish by Edward Mussey Hartwell, M.D., Ph.D. 8vo, pp. xvi, 316. With seven illustrations. Philadelphia: P. Blakiston, Son & Co. 1892.

This work comes before us with an endorsement by Weir Mitchell, who states that he knows of no other book on the subject which is so good. In the main

this praise is well deserved. The author has a clear idea of the physiological action of massage, he recognizes, but does not exaggerate its value in certain affections, and his directions in regard to the methods of employing it and to the indications for its use are clear and sound. Frequent personalities detract from the scientific value of the book, although they are at times entertaining. As we seem to be entering upon a season when Swedish gymnasts are in fashion, and as in some instances members of the medical profession have somewhat unwisely endorsed their claims, it would be well for the profession to read the judgment pronounced upon them in this work.

The Disease of Inebriety from Alcohol, Opium and other Narcotic Drugs, its Etiology, Pathology, Treatment and Medico-Legal Relations. Arranged and compiled by the American Association for the Study and Cure of Inebriety. 8vo, pp. xiv, 400. New York: E. B. Treat. 1893.

The Association which assumes the responsibility for this work has adopted as its creed that inebriety is a disease which is curable; that it may be inherited or acquired; that alcohol is a poison; and that inebriate asylums are essential for the cure of inebriety. In support of this creed this volume has been published. Although it has the general endorsement of the Association, and is edited by its secretary, it seems to be the work of various hands, and many of the opinions advanced are without the weight of any personal authority, and anonymous scientific works seldom commend themselves. Much of the work is a compilation from various sources, put together with little method and without judicial weighing of evidence. That inebriety is often a disease few will question, but many of the statements brought forward in support of this view are still questionable, and when, on anonymous authority, we are told that alcoholism and tuberculosis are closely related, because pulmonary phthisis is principally nervous in character, we naturally doubt the scientific value of the work. Inebriate asylums, furthermore, have not yet fully established their value, in spite of the glowing endorsements they receive here. The proof-reading is beneath contempt, and the mechanical execution poor.

New York State Reformatory at Elmira. Seventeenth Year-Book, containing the Annual Report of the Board of Managers for the year ending September 30, 1892. 8vo, pp. 278. With illustrations.

Many men have some vague idea of the methods in use at the Elmira Reformatory, and the results obtained there; but definite knowledge as to the work which has made the institution famous is, we fear, only too rare. At any rate the table showing the state of the reformatory movement in this country is not encouraging. Seven States only have reformatories, and an equal number an indeterminate sentence law, yet Elmira reports, under the New York system, 82.3 per cent. of probable reformations. Beside the ordinary statistical tables this report gives many interesting details of the practical workings of the methods employed in the Reformatory, and it is to be commended to every one interested in the criminal, whether from an anthropological or a sociological standpoint, and to all legislators.

The report is well printed and illustrated, the work being done by the inmates of the Reformatory.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, SEPTEMBER 7, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

TEXAS CATTLE FEVER, AND THE MODE OF ITS TRANSMISSION.

THE agencies concerned in the transmission of disease are legion. In the vegetable world innumerable means are employed for the propagation of plants — by the aid of the winds, by birds, beasts, insects (as in the transfer of pollen by bees) and by the hand of man. So among animals, including the human race, some diseases are transmitted by direct contact, others by the medium of the breath, others through the alimentary tract, others by inoculation. Certain diseases are capable of transmission from the lower animals to man, and *vice versa.*

After extensive researches as to the natural history of the Texas cattle fever, the Bureau of Animal Industry (Department of Agriculture), at Washington, publishes its belief that an insect closely allied to the tick described by Dr. Williams in this number of the JOURNAL, constitutes a very important agency in promoting the spread of the disease. These researches are published in Bulletin No. 1 of the Bureau (1893), by Dr. D. E. Salmon, Chief of the Bureau, and were conducted, under his direction, by Drs. Smith and Kilborne.

Dr. Salmon, in his introductory letter, says: "The dissemination of the deadly contagion by apparently healthy cattle, and the harmlessness in general of the really sick animals were inexplicable by any facts which were furnished by the study of other diseases. Veterinarians who had not had an opportunity to observe this disease were skeptical in regard to the correctness of such conclusions, and some spoke of them as a 'romance in pathology.' There was an early impression among cattle-raisers that the tick was in some way to blame; but scientists were incredulous, because they could not understand how the bite of these insects could produce an acute disease, accompanied with destruction of blood-corpuscles, and lesions of internal organs. It was not till the micro-organism was found in the blood corpuscles, and its destructive effects were

revealed, that the action of the ticks could be explained."

Experiments were made by the Bureau which demonstrated that the ticks carried the infection, introduced it into the tissues of the susceptible cattle, and in that way produced the disease. In this case there is, therefore, a complicated infection, in which two very different kinds of parasites play an important part.

Another remarkable discovery is that the micro-organism which constitutes the contagion of the disease is transmitted through the egg to the young tick, and it is this, and not the adult tick carried by the southern cattle, which finds its way upon susceptible animals, and causes the disease. In the absence of the tick, the disease is probably not communicable except by artificial inoculation.

The experiments were carefully conducted in isolated fields, and extended over several years' time.

The principal facts established by these investigations are (1) the constant presence of a blood-corpuscle-destroying micro-organism in Texas fever, and (2) the transmission of the disease from cattle to cattle by the tick.

The report embraces chapters on the natural history of the Texas cattle fever, its causation, its transmission by means of the cattle tick, and the immunity of cattle.

The tick which plays so important a part in the transmission of this disease was described by Professor Riley, in 1868, under the name of *Ixodes bovis*, and more recently by Dr. Marx, as *Boöphilus bovis*. It has the general characteristics of the genus, and each female lays from one thousand to two thousand eggs.

The experiments were conducted in three different directions during the period of four years (1889–1892).

(1) Ticks were carefully picked from southern cattle, so that none could mature and infect the ground. The object of this group of experiments was to find out if the disease could be conveyed from southern to northern stock on the same enclosure without the intervention of ticks.

(2) Fields were infected by matured ticks, and susceptible cattle placed on them to determine whether Texas fever could be produced without the presence of southern cattle.

(3) Susceptible northern cattle were infected by placing on them young ticks hatched artificially, that is, in closed dishes in the laboratory.

The report then gives a detailed account of the method of experimentation, together with plates illustrating the diseased and healthy structures, the micro-organisms, the tick in different stages of its growth, and presents the following conclusions as the results of observation and experiments:

(1) Texas cattle fever is a disease of the blood, characterized by a destruction of red corpuscles. The symptoms are partly due to the anæmia produced; partly to the large amount of *débris* in the blood, which is excreted with difficulty, and which causes derangement of the organs occupied with its removal.

(2) The destruction of the red corpuscles is due to a micro-organism or micro-parasite which lives within them. It belongs to the protozoa and passes through several distinct phases in the blood.

(3) Cattle from the permanently infected territory, though otherwise healthy, carry the micro-parasite of Texas fever in their blood.

(4) Texas fever may be produced in susceptible cattle by the direct inoculation of blood containing the micro-parasite.

(5) Texas fever in nature is transmitted from cattle which come from the permanently infected territory to cattle outside of this territory by the cattle tick (*Boöphilus bovis*).

(6) The infection is carried by the progeny of the ticks which matured on infected cattle, and is inoculated by them directly into the blood of susceptible cattle.

(7) Sick natives may be a source of infection (when ticks are present).

(8) Texas fever is more fatal to adult than to young cattle.

(9) Two mild attacks or one severe attack will probably prevent a subsequent fatal attack in every case.

(10) Sheep, rabbits, guinea-pigs and pigeons are insusceptible to direct inoculation. (Other animals have not been tested.)

(11) In the diagnosis of Texas fever in the living animals the blood should always be examined microscopically, if possible.

JEAN MARTIN CHARCOT.

In the death of Charcot, the medical profession has lost a conspicuous figure. Charcot was a prolific original investigator, whose contributions to various departments of medicine have hardly been exceeded by any one of this age. As a clinical teacher, he was one of the most popular on the Continent. He died in the midst of a busy life, but not before suffering from marked diminution of his physical powers. His death was, doubtless, partly the result of overwork, for he habitually took too little rest, as his large private practice was enough to fully tax the strength of any man.

To enumerate his titles and honorary offices, or the titles of his contributions to medicine would require more space than is at our disposal. Besides being connected with the founding and management of three medical reviews, he published over two hundred and fifty memoirs, chiefly pathological, in all of which something valuable was added from his own investigations.

In 1853, Charcot published his thesis for the doctorate, entitled, "A Study of the Affection described under the Names of Primary Asthenic Gout, Nodosities of the Joints, Chronic Articular Rheumatism." His researches in this disease comprehend a vast number of clinical and post-mortem observations made at the Salpêtrière. One of the most important facts brought to light by these researches is that affections of the heart, such as pericarditis and endocarditis, be-

long to the generalized form of chronic articular rheumatism, as well as to acute rheumatism. Another result is to establish an identity between the affection known in surgery under the names of dry arthritis, arthritis deformans, etc., and nodular rheumatism. The separation of gout and chronic articular rheumatism is maintained. He showed that the presence of uric acid cannot be detected in the serum of the blood in chronic articular rheumatism, while in acute and chronic gout the existence of crystals of uric acid has always been recognized.

In a subsequent memoir, he considers the alterations of the kidney observed in the gouty, and gives new researches on the alterations of the joints. Gouty nephritis he believes to be by no means rare, to be attended by deposits of urates in various parts of the kidney, and frequently with the symptoms of renal colic. The lesions may be those of parenchymatous or interstitial nephritis, and the general symptomatology is that of Bright's disease.

Charcot published numerous memoirs on arterial and capillary embolisms at a time when this study was new, and German pathologists were just beginning to give attention to the subject. A *brochure* "On Sudden Death from Obstruction of the Pulmonary Artery by Blood-clots, etc., contains the first observation of death by pulmonary embolism published in France. His paper "On Ulcerative Endocarditis," published in 1862, based on a case of ulcerous affection of the tricuspid valve with typhoid state and the formation of multiple abscesses in both lungs, was the point of departure of an extensive medical literature.

Charcot's contributions to diseases of the lungs constitute two volumes of the new series of his writings. No one now describes the lesions of broncho-pneumonia without referring to his work. In the study of *pneumokoniosis* and *anthracosis* his experiments on guinea-pigs, which were made to inhale in bags mineral or coal dust, gave valuable aids to the comprehension of the pathogeny of a disease often observed in men as a result of occupations exposing them to the action of solid particles diffused in the air. His anatomo-pathological researches on phthisis and chronic pneumonia have furnished valuable data and introduced system where it was before wanting.

His contributions to the subject of diseases of the liver and kidney are embodied in a volume published in 1882. He experimentally determined in guinea-pigs hypertrophic cirrhosis of the liver of biliary origin, and showed its identity with the disease which develops in man as the result of obstruction of the common bile duct. The different stages of the process he divides into angiocholitis, periangiocholitis, cirrhosis. His researches on the common or atrophic form of cirrhosis of the liver are also well known. He, more than any of his predecessors, has insisted on *periphlebitis* as the cause of this affection, and shown the extension of the inflammation from the veins to the connective-tissue. His observations clearly differentiate this form from the other types of interstitial hepatites. Charcot's researches on *grave icterus*, on *interstitial nephritis*, which he was the first experimentally to produce in animals by ligature of one of the ureters, an experiment which showed that the alteration of the epithelium precedes the connective-tissue proliferation, and on the various forms of Bright's disease, may also be noted.

He has also published valuable memoirs on fevers and on cholera, on skin diseases and on exophthalmic goitre, and his "Clinical Lectures on Diseases of Old Age," a work which embodies many of the researches and studies which he had previously made on gout and rheumatism. His contributions to the study of diseases of the nervous system — memoirs and treatises more than a hundred in number — are of great importance. In fact, it is in this department of medicine that he is best known.

Since January, 1882, Charcot held the chair of Clinical Instruction in Diseases of the Nervous System at the Salpêtrière, and gave almost his undivided attention to nervous diseases.

Among his contributions we may mention his clinical and anatomo-pathological researches on encephalitis; his "New Researches on the Pathogeny of Cerebral Hæmorrhage," which contain his description of miliary aneurisms, consequence of endarteritis, and cause of the cerebral hæmorrhages which characterize especially the apoplexies of old age; his studies on secondary degenerations of the spinal cord, on localizations in diseases of the cerebrum, on localizations in the cerebral ganglionic masses of the hemispheres, lesions of the internal capsule in particular; his memoirs on cerebral hemianæsthesia by organic lesion, and on secondary degenerations of the spinal cord in cortical lesions of the hemispheres, showing that lesions of the so-called motor zone even without participation of the internal capsule produces secondary spinal degenerations. We must pass by his valuable contributions to the study of localizations in diseases of the spinal cord. His discoveries in the subject of the *scleroses* alone — locomotor ataxia, multilocular sclerosis, fasciculated sclerosis of the lateral columns, also in the department of infantile paralysis, amyotrophic paralysis of the adult, labio-glosso-laryngeal paralysis, are of the greatest importance.

The modern study of hypnotism is intimately associated with the name of Charcot. His scientific methods of studying the subject, as opposed to the school at Nancy, are well known: in fact, the intimate association of his name with hypnotism has masked the importance of his work in other directions.

THE TENEMENT-HOUSES OF BOSTON.

THE recent report of the Bureau of Statistics of Labor on the sanitary condition of the tenement-houses of Boston shows much to be desired; but it also shows the results of the constant and conscientious work of the City Board of Health. This board suffers from

lack of authority, or divided authority, in dealing with buildings and remedies for existing evils.

The tenement-house population of Boston is continually changing. The worst part of it is composed very largely of foreigners accustomed to dirt; and the houses are often owned by landlords who can only be persuaded to clean up their premises when obliged to by legal authority. Some parts of the city are overcrowded, and in some there is a constant inflow of recent arrivals. On the whole, the health conditions of the city are good, but can only be kept so by continued watchfulness. The report classifies the tenement-houses into excellent, good, fair, poor and bad, in respect to their outside and inside sanitary conditions, ventilation, light and air and cleanliness. A tenement-house is one occupied by more than three families living independently of one another and doing their cooking upon the premises, or by more than two such families above the second floor. 5,992 families, containing 26,097 persons live in tenements classed as being of poor or bad inside sanitary conditions; and 38,311 live in uncleanly places. The percentages for the city show that of persons living in rented tenements about 12 per cent. are found in tenements having poor or bad outside sanitary conditions; between eight and nine per cent. in tenements poor or bad as to light, air and ventilation, and between 12 and 13 per cent. in tenements poor or bad with respect to cleanliness.

The health department has ordered 108 houses vacated during the year, in about three-quarters of which the requirements of the board were complied with within the specified time. In addition 14,079 nuisances were abated, and 872 privy vaults abolished.

The total number of families living technically in tenements is 71,665. Of these, 53,189, containing 228,680 persons, have no bath-room; 5,799 families are dependent on privies; while 65,866 have water-closets; but many of these privies are in the suburbs. 53,831 families have the use of yards; many use them for drying clothes; most of the remainder use roofs; 266 use rooms in the tenement; 4,710 use pulley lines; and a few others use vacant lots. There are 3,657 sleeping-rooms without outside windows.

The report describes the worst parts of the city, many of them being places and alleys technically private, which the street department does not clean. Pressure has in many cases been brought to bear on the abutters; but these private places, and empty lots, and yards of houses require constant inspection, and notification.

MEDICAL NOTES.

The Manufacture of Cripples. — A horrible disclosure has been made in Biskupitz, Austria, by the arrest of a gang of men who for some time have been engaged in crippling children for the begging trade. Several unfortunate children were found in the house with their legs and arms broken and bound in positions of deformity. One little girl had both eyes gouged out. Instruments, which had been used in producing physical deformities, were discovered in the cellar. After the children (who had been stolen) were sufficiently deformed, they were sold to other persons for begging purposes.

Cholera. — The cholera throughout Europe remains unabated. In the East the condition has begun to improve. St. Petersburg has several new cases daily. In Hungary and Galicia the number of new cases each day is over twenty, with a high death-rate. Vienna is, at last reports, free from the disease. No new cases have occurred in Berlin. In Italy the epidemic is well scattered along the coast. Genoa has two or three deaths daily. Alessanchia, Messina and Catania are all infected; while in Palermo there are about thirty new cases daily. In Leerdam and Rotterdam where the cholera appeared August 25th, there are now nine or ten new cases daily with about five deaths. In England the port of Grimsby, Lincolnshire, has been declared to be infected with cholera, and traffic between it and other British ports has been prohibited. During August there were eighty deaths in Grimsby from what was called at first diarrhœa, and later a choleraic disease. The general belief now is that many of these deaths were due to cholera. Several deaths from sporadic cholera occurred last week in Jersey City, and occasioned some alarm. In two cases the dejecta contained spirilla.

NEW YORK.

Cholera in Jersey City. — It has as yet been found impossible to trace the origin of the unexpected occurrence of cholera in Jersey City. As soon as the suspicions of the members of the Board of Health of that city were aroused they called upon the Health Department of New York to assist them, and the bacteriological investigation made by Dr. H. M. Biggs, Chief Inspector of Pathology, Bacteriology and Disinfection, showed that the disease was true Asiatic cholera. Since then the officers of the Jersey City Board of Health, the New Jersey State Board of Health, the New York Board of Health, the United States Marine-Hospital Service, and the New York Quarantine Department have been in constant conference with a view to preventing the occurrence of other cases.

Mortality. — The State Board of Health reports that the average daily mortality during the month of July (in which the death-rate is always larger than in any other month), was 398, against 437 last year. The health of the city of New York continues exceptionally good for this season of the year. During the week ending August the number of deaths reported was 752; which is a decrease of 53 compared with the mortality of the preceding week and 71 less than the average of the corresponding weeks during the past five years. The number of deaths of children under five years of age from diarrhœal diseases was only 88, and this is 47 below the average of the corresponding weeks of the past five years.

ACTIONS AGAINST DRUGGISTS. — Two infants have recently died in Brooklyn from the effects of medicines illegally prescribed by druggists, and proceedings have been instituted against the latter. An action for $10,000 damages has also been brought against one of these druggists in another case. The plaintiff alleges that his five-year-old daughter, having broken her arm, was taken to the defendant's drug-store, and that a liniment was prescribed under the idea that the injury was merely a sprain. For ten days or more this was used, but the arm finally became so swollen that the child was taken to the Brooklyn City Hospital, where it was ascertained that a fracture had occurred. By this time the bones had united in such a way as to cause a marked deformity, and it became necessary to fracture them over again and reset the fragments.

A CASE OF LONGEVITY. — Mrs. Ann Hyde, according to the last census the oldest woman in New York State, died at her residence at Fishkill on the Hudson, August 28th, at the age of 104 years and four months. She was born at Fishkill, April 28, 1789, and as her name is on the baptismal register of the old Dutch church in that village, there can be little doubt about the correctness of her age.

Miscellany.

"THE NEW ACQUAINTANCE."

IN an article in a recent number of *Blackwood's* on "Scottish Medicine in the days of Queen Mary" there is an interesting account of one of the earliest epidemics of influenza. In November, 1562, Mary, Queen of Scots, was taken ill with a disease which had appeared suddenly and was widespread, exciting much curiosity among the people by reason of its novelty. Thomas Randolph, an emissary of Elizabeth at the Scotch court, wrote to Lord Cecil as follows:

"May it please your honor, immediately upon the queen's arrival here she fell acquainted with a new disease that is common in this town, called here the New Acquaintance, which passed through her whole Court, neither sparing lord, lady nor damoiselle — not so much as either French or English. It is a pain in their heads that have it, and a soreness in their stomachs with a great cough that remaineth with some longer, with others shorter time, as it findeth apt bodies for the nature of the disease. The queen kept her bed six days; there was no appearance of danger, nor many that die of the disease except some old folks."

THE WILLIAM F. JENKS MEMORIAL PRIZE.

THE trustees of the College of Physicians of Philadelphia will award the third triennial prize, of five hundred dollars, under the Deed of Trust of Mrs. William F. Jenks, to the author of the best essay on "Infant Mortality during Labor, and its Prevention."

The conditions annexed by the founder of this prize are, that the "prize or award must always be for some subject connected with Obstetrics, or the Diseases of Women, or the Diseases of Children"; and that "the trustees, under this deed for the time being, can, in their discretion, publish the successful essay, or any paper written upon any subject for which they may offer a reward, provided the income in their hands may, in their judgment, be sufficient for that purpose, and the essay or paper be considered by them worthy of publication. If published, the distribution of said essay shall be entirely under the control of said trustees. In case they do not publish the said essay or paper, it shall be the property of the College of Physicians of Philadelphia."

The prize is open for competition to the whole world, but the essay must be the production of a single person.

The essay, which must be written in the English language, or if in a foreign language, accompanied by an English translation, should be sent to the College of Physicians of Philadelphia, Pennsylvania, U. S. A., before January 1, 1895, addressed to Horace Y. Evans, M.D., Chairman of the William F. Jenks Prize Committee.

Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay.

The Committee will return the unsuccessful essays if reclaimed by their respective writers or their agents, within one year.

The Committee reserves the right not to make an award if no essay submitted is considered worthy of the prize.

LEGISLATION FOR THE PREVENTION OF BLINDNESS FROM OPHTHALMIA NEONATORUM.

IN the present day of prophylactic medicine no disease offers a more encouraging field for sanitary legislation than does ophthalmia neonatorum. A disease which causes yearly an enormous number of cases of permanent blindness, being undeniably a preventable one, should not escape strict control. Statistics from the various asylums of Europe and America show that an average of twenty-four per cent. of all cases of blindness are due to contagious ophthalmia of the new born. Prince[1] shows by a study of collected cases the indisputable fact that the percentage of cases of ophthalmia of inter-partum origin has steadily diminished under improved methods of obstetrical cleanliness. Of the cases which do occur, the number permanently injured has decreased even more since the importance of immediate care has been made generally known.

Much still remains to be done, however, both by missionary distribution of literature on the subject, as is done by the Hungarian, Austrian and French Governments, and by actual legislation by our States. Switzerland, in 1865, was the first country to take action, with the proud result that Professor Horner could say that during his lifetime no child born after 1865 was admitted to the Blind Asylum at Zurich with sight lost from ophthalmia neonatorum.

In this country New York and Maine passed laws requiring midwives to report reddened or inflamed eyes of children under their care within six hours, under penalty of fine or imprisonment. Bills to effect the same purpose have been introduced this past winter

[1] New York Medical Record, August 26, 1893.

in the Legislatures of Ohio, Pennsylvania, Minnesota, Illinois, and the Dominion of Canada.

A subject of so much importance ought not to be neglected longer in any State which claims to have an interest in the welfare of its children.

Correspondence.

[From our Special Correspondent.]

LETTER FROM PARIS.

PARIS, August 18, 1893.

MR. EDITOR: — Only the pleasure of writing to the JOURNAL could induce one to make any great exertion to-day, with the thermometer at 95° Fahrenheit, in the shade, and not a breath of breeze. I have been waiting to go to the Salpêtrière until I can safely do so without sunstroke, and now Charcot is dead. The medical profession of Paris, of the world, has lost two great representatives this week, two men quite unlike in outward manner, but at heart equally enthusiastic for medical progress.

The brilliant extent of Professor Charcot's work, especially the almost dramatic results of hypnotism, have been the theme of all the papers for the last few days. The *Figaro* says that, "though in time the world may have lost all recollection of his work on locomotor ataxia, of his researches into the nature of hysteria and neurasthenia, and many have forgotten that he suspended tabetics that they might live, and that (without metaphor) he sold — dearly — wisdom to dements, there is one thing it can never forget, that he could drive out evil spirits and could calm perturbed souls, and that from all quarters of the world, where his word was as law, the worn and shattered mind turned to him as to a very miracle-worker and a savior."

Of all his work, the researches into hypnotism are here considered the great glory of his life and of modern medicine. His clinic at the Salpêtrière was called the "rendezvous and heart of the medical world." Doubtless his work will last; but it is exposed to great danger of change and evil, for in such a specialty there is a subtile distinction to be kept between medicines and charlatanry. This distinction Charcot maintained with the most delicate and appreciative tact, kept his work up to the standard of scientific research in spite of all attempt to degrade it to empiricism.

He was at times reproached, and not perhaps without some semblance of truth, with an unmeasured pride, a personality which was unabashed and assertive, and a love for applause which bordered upon the theatrical; but no one ever questioned his genius. "Great as his renown in France, it was here that he held the lowest place of all his glory; for at Dorpat as at Jena or Edinburgh or Berlin, at Vienna as at New York, his word was as law to the initiated."

A distinguished scholar, a wise observer, a prudent and sagacious clinician, often a bold experimenter, Charcot exercised an influence upon contemporary medicine as great as it was salutary. Discussing with a remarkable insight and breadth of view each new idea as it was advanced, he was an incomparable teacher. He died in the fulness of his powers; and with him there vanished one of the strongest personalities of this age.

Antoine-Emile Blanche was less known abroad, but his place will be even harder to fill than Charcot's. The son of a noted physician, he inherited an aptitude for the care of the sick which was little short of marvellous. A warm and generous nature which went out in sympathetic tenderness to the suffering, coupled with unusual strength of will and purity of character, made him particularly fitted for his specialty as an alienist. His private asylum at Passy was the retreat of many noted men. "He gathered the wounded in the battle of poetry, of romance, of the drama or of daily life, and carried them tenderly away to care for them, and cure if possible, upon his hill of Montmatre. No one might know the names of the patients of Dr. Blanche. He was the first to keep silent the name of him he saved; and as he kept the secret of those who died, he kept the harder and more sacred secret of those who lived. He passed silently and without recognition the patient he had cured. Once they returned to the walks of men, he ceased to know them."

A wise and good physician, he corrected theory by observation; fully abreast of the times in his scientific knowledge, he was always conservative in practice. His patients were not so much pathological studies as they were human beings and he more than once expressed a fear that "the brilliancy of new methods might make men forget somewhat the old, which consisted in *pity* for the sick." The regret for his death has been widespread and sorrowful — a personal grief, as it were, for the loss of a warm friend, a generous giver, a tender, wise and just physician.

Last year much joy was given to the Parisians by a man with a musical anus. This year medicine supplies the curiosity. At the close of the Congress for the Advancement of Science the members of the Section of Medicine had a banquet. At dessert the "venerable Dr. Schiff of Geneva, who presided," entertained the company by playing the *Marseillaise* with the abductor muscles of his feet. Strong rhythmic contractions produced a sound audible for two or three metres. He is said to be the only possessor of this accomplishment in society, which, however, does not prevent him from being a gallant gentleman and a scholar — *Au contraire!*

The health of Paris has been unusually good this year, notwithstanding the great heat, which has now lasted almost uninterruptedly for two weeks, and prevailed previously with interruptions. This heat has been accompanied by prolonged dryness, which has seriously injured all crops except the fruit crops. A remarkable yield of grapes is looked for, and experts expect a very fine year for wines. There has been no cholera in Paris or its neighborhood, and no occasion to avoid the city on account of that disease.

The new water-supply is of excellent quality, though not yet entirely sufficient in quantity. There are very few strangers in the city, and Americans are conspicious by their absence. Yours truly, S. E.

MEDICAL WITNESSES.

DORCHESTER, September 1, 1893.

MR. EDITOR: — Judge Hammond remarks, on expert testimony, as he is quoted in the Boston *Medical and Surgical Journal*:[1] "The physician is often hampered by the stupid questions of the lawyer, who frequently puts on so many conditions that it may be impossible to answer many of his questions, and no attempt should be made to do so in the form in which they are presented."

This calls to my mind a case in which I once appeared before a coroner's jury, together with the late Drs. J. B. S. Jackson and C. C. Holmes, of blessed memory. The case was one which was of much public interest at that time. A young man had been severely beaten by a jealous husband. He came home bruised in body, and mortified in spirit, took cold, had a sore throat, and died. After the post-mortem, Dr. Jackson said: "Who can say that the beating caused this young man's death, and who doubts that, if he had not been beaten he would be alive to day?" The coroner with his jury (nearly all of them named Tucker, with Captain Elijah as foreman, if I remember aright) was waiting for the result of the autopsy. The coroner was a very excellent and intelligent gentleman (and, withal a good judge of a horse), but the situation in which he found himself was new to him. One who has listened to medical testimony can well understand how, with an inexperienced coroner, the more talk the more confusion of ideas on the part of the jury. Such was the condition of affairs when Captain Elijah, impatient at the multitude of words, exclaimed, "What *killed* the man? That's the pint."

If the lawyers would ask questions to the *pint*, we should not hear so much complaint of medical experts. C.

[1] Vol. cxxix, p. 49.

METEOROLOGICAL RECORD,

For the week ending August 26, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	Rainfall in inches.
S..20	30.06	64	67	61	89	89	89	S.E.	E.	5	12	R.	O.	0.02
M..21	29.82	60	63	58	94	84	89	N.E.	W.	24	12	R.	O.	1.65
T..22	30.11	70	80	59	74	81	78	W.	S.	8	8	C.	F.	
W..23	30.24	67	72	62	83	87	85	S.W.	E.	3	8	C.	O.	
T..24	29.78	68	74	62	100	71	85	S.E.	S.W.	26	26	R.	O.	0.13
F..25	29.93	80	93	68	70	72	71	S.W.	S.W.	14	7	C.	C.	
S..26	30.00	80	88	72	63	80	72	W.	E.	7	6	C.	C.	
☞	29.99		77	63			81							1.80

* O., cloudy: C., clear: F., fair: G., fog: H., hazy: S., smoky: R., rain: T., threatening: N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 26, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	752	351	24.44	13.26	13.52	.78	5.46
Chicago	1,438,000	528	296	33.82	7.03	23.37	2.47	4.37
Philadelphia	1,115,562	387	180	23.32	10.92	15.86	3.64	2.34
Brooklyn	978,394	319	222	35.42	11.47	27.28	1.86	4.03
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	212	90	23.97	14.57	16.92	1.88	2.82
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	119	64	27.52	9.46	15.48	3.44	5.16
Cincinnati	305,000	99	37	20.20	4.04	12.12	4.04	2.02
Cleveland	290,000	107	63	32.55	6.51	28.83	.97	.97
Pittsburg	263,709	—	—	—	—	—	—	—
Milwaukee	250,000	120	80	40.67	7.47	32.37	1.66	3.32
Nashville	87,754	36	15	19.46	16.68	5.56	8.34	—
Charleston	65,165	—	—	—	—	—	—	—
Portland	40,000	11	4	18.18	9.09	18.18	—	—
Worcester	96,217	37	24	43.20	—	29.70	—	—
Fall River	87,411	36	25	58.38	8.34	58.38	—	—
Lowell	87,191	46	34	45.57	8.34	43.40	2.78	—
Cambridge	77,100	29	13	34.05	13.80	20.70	—	—
Lynn	62,636	30	15	26.66	9.99	20.00	—	—
Springfield	48,684	18	8	33.33	16.66	27.27	—	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	29	18	48.30	6.90	41.40	—	—
Holyoke	41,278	—	—	—	—	—	—	—
Salem	32,233	12	7	25.00	—	25.00	—	—
Brockton	32,140	9	5	—	—	—	—	—
Haverhill	31,396	10	5	50.00	—	30.00	10.00	—
Chelsea	30,264	13	4	15.38	15.38	—	—	—
Malden	29,394	10	2	30.00	10.00	30.00	—	—
Newton	27,556	—	—	—	—	—	—	—
Fitchburg	27,146	7	3	42.84	—	42.84	—	—
Taunton	26,572	13	4	38.46	—	38.46	—	—
Gloucester	26,688	15	9	59.94	6.66	52.22	—	—
Waltham	22,058	11	6	45.45	18.18	36.36	—	9.09
Quincy	19,642	7	3	42.84	28.56	42.84	—	—
Pittsfield	18,802	9	6	66.66	—	55.55	—	11.11
Everett	16,585	3	2	33.33	—	—	33.33	—
Northampton	16,331	10	4	30.00	20.00	30.00	—	—
Newburyport	14,073	6	0	16.66	—	—	16.66	—
Amesbury	10,920	2	2	—	—	—	—	—

Deaths reported 3,069: under five years of age 1,615; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fevers), 913, diarrhœal diseases 638, consumption 316, acute lung diseases 180, diphtheria and croup 107, typhoid fever 63, whooping-cough 29, cerebro-spinal meningitis 23, scarlet fever 22, measles 17, malarial fever 9, erysipelas 3, small-pox 2.

From whooping-cough New York 9, Chicago 7, Philadelphia and Brooklyn 3 each, Cincinnati 2, Boston, Washington, Nashville, Cambridge and Haverhill 1 each. From cerebro-spinal meningitis Chicago 7, New York 5, Brooklyn and Washington 2 each, Philadelphia, Cleveland, Worcester, Lynn, New Bedford, Gloucester and Waltham 1 each. From scarlet fever New York 6, Chicago and Boston 3 each, Philadelphia, Milwaukee and Cambridge 2 each, Brooklyn, Worcester, Lynn and Woburn 1 each. From measles New York 11, Brooklyn, Washington, Milwaukee, Worcester, Springfield and New Bedford 1 each. From small-pox New York and Chicago 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,322,429, for the week ending August 19th, the death-rate was 22.8. Deaths reported 4,515; diarrhœa 629, whooping-cough 100, measles 92, diphtheria 81, scarlet fever 78, fever 76, small-pox (Bradford 4, London 3, West Ham 2, Birmingham 1) 10.

The death-rates ranged from 13.6 in Halifax to 33.1 in Preston; Birmingham 22.0, Bradford 17.6, Croydon 24.4, Hull 31.0, Leicester 25.2, Liverpool 27.1, London 22.5, Manchester 23.2, Newcastle-on-Tyne 18.3, Nottingham 21.5, Portsmouth 19.3, Sheffield 25.8, West Ham 25.2.

AN ARMY MEDICAL BOARD

Will be in session at Washington City, D. C., during October, 1893, for the examination of candidates for appointment to the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before September 15, 1893, for the necessary invitation, stating the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from whence they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal knowledge, from at least two physicians of repute, as to professional standing, character and moral habits. The candidate must be between twenty-two and twenty-eight years of age and a graduate from a regular medical college, as evidence of which, his diploma must be submitted to the Board.

Further information regarding the examinations may be obtained by addressing the Surgeon-General, U. S. Army, Washington, D. C.

GEO. M. STERNBERG, *Surgeon-General U. S. Army.*

MASSACHUSETTS MEDICAL SOCIETY.

CENSORS' EXAMINATION.

The Censors of the Suffolk District Medical Society, officiating for the Society at large, will meet for examination of candidates for admission to the Massachusetts Medical Society, at 19 Boylston Place, on Thursday, September 21, 1893, at 2 P. M.

Candidates should make personal application to the Secretary on Mondays or Thursdays, from 2 to 3 P. M., or at the time and place of the examination. They must bring their medical diploma or a certificate that they are entitled to one, with them.

JAMES J. MINOT, M.D.,
188 Marlborough Street. *Secretary.*

RECENT DEATHS.

DAVID SYLVESTER FOGG, M.D., M.M.S.S., died in Norwood, August 30th, aged seventy-two years.

ADONIRAM J. GREELY, M.D., died in Providence, R. I., September 1st, aged seventy-five years.

BOOKS AND PAMPHLETS RECEIVED.

The Successful Treatment of Typhoid Fever. By Charles Milton Buchanan, M.D., Washington, D. C. Reprint. 1893.

A Manual for Boards of Health and Health Officers. By Lewis Balch, M.D., Ph.D. Albany, N. Y.: Banks & Brothers.

Report of Four Hundred and Sixty-Six Cases of Intubation of the Larynx. By F. E. Waxham, M.D., Denver, Colo. Reprint. 1893.

Tenth Annual Announcement of the Medical and Dental Departments of the National University, 1893-94, Washington, D. C.

Observations on a Case of Recurrent Amœbic Dysentery with Successive Large Hepatic Abscesses. By John Winters Brannan, M.D. Reprint. 1893.

Transactions of the New York State Medical Association for the year 1892. Vol. IX. Edited for the Association by Ogden C. Ludlow, M.D. New York. 1893.

Transactions of the Medical Society of the State of Pennsylvania at its Forty-Third Annual Meeting, held at Williamsport. Vol. XXIV. Philadelphia: Published by the Society. 1893.

A Manual of Medical Treatment or Clinical Therapeutics. By I. Burney Yeo, M.D., F.R.C.P., Professor of Therapeutics in King's College, London. In two 12mo volumes containing 1275 pages, with illustrations. Philadelphia: Lea Brothers & Co. 1893.

Lecture.

THE MISUSE OF DRUGS IN MODERN PRACTICE.[1]

BY JOHN T. G. NICHOLS, M.D., OF CAMBRIDGE.

(Continued from No. 10, page 242.)

Of late years, the value of drugs in the treatment of disease has been asserted with increasing vigor. I have already spoken of the number of new remedies which have been brought to our notice of late years. I quote from an article on "Progress in Pharmacy," by John Aulde, M.D.:

"Alkaloids and synthetic remedies practically rule the field, and the pharmacist finds his sphere limited principally to preparing these powerful concentrated remedies into convenient forms for administration. It has been a decade of enormous progress, and the resulting disquietude of the transition period is not yet allayed. New remedies are introduced day by day, without a sign of abatement in the inventive and creative art of the chemist. . . . It is a safe estimate to claim that one hundred new remedies of synthetic origin, which were not known ten years ago, are now in general use, and the number is daily increasing."[8]

But it is not necessary to multiply authorities. One has only to turn over the pages of our medical journals to be convinced of the truth of this statement. New remedies are announced almost daily. We read of new uses for the same remedy, new remedies for the same uses, until we wonder, as the layman must, as he reads the medical advertisements in the daily papers, that our bills of mortality are still so high.

Have we reason to believe that we have made substantial gain in our power to control disease by this great addition to our list of remedies?

It was held by Bigelow and his supporters that most acute diseases were self-limited, and could be influenced only slightly, if at all, by drugs. "By a self-limited disease," he says, "I would be understood to express one which receives limits from its own nature, and not from foreign influences; one which, after it has obtained foothold in the system, cannot, in the present state of our knowledge, be eradicated or abridged by art; but to which there is due a certain succession of processes, to be completed in a certain time; which time and processes may vary with the constitution and condition of the patient, and may tend to death, or to recovery, but are not known to be shortened or greatly changed by medical treatment."[9]

Nearly sixty years have passed since these words were written. With all the activity in the study of therapeutics, with all the new medicines which have been added to our list, can this definition be disputed or materially changed? Certainly not, as far as the epidemic diseases are concerned which from time to time make their appearance with such fatal results. The fatality of the recent epidemic of cholera in Europe, amounting to about fifty per cent., shows no gain in our power to control it. The same thing may be said of yellow fever. If we have made any progress in our treatment of small-pox, it has been by following the methods of rational medicine, and trying to support the patient while the disease goes through its regular succession of processes.

Diphtheria is a disease which many of us still in active practice have seen in its commencement and spread. Its average death-rate of about one-third shows that no medicine has yet been found which can materially influence its course. On the other hand, when we examine the properties of many of the drugs which have had a wide use, we cannot escape the conclusion that the patient has often had to contend with the remedy, as well as with the disease. In a recent discussion in the New York Academy of Medicine, Dr. E. H. Janeway said "he had no doubt that a certain number of people, said to die of diphtheria, in reality died of the remedies given against the disease."[10]

Epidemic influenza tends strongly to recovery. Its results, immediate and remote, are determined by the constitution and condition of the patient. Various as are the drugs which have been given in this disease, good as are the results which have been claimed for them, there is no drug treatment upon which the profession is agreed as materially influencing it.

The result of the tabulation of one thousand cases of acute lobar pneumonia, treated in the Massachusetts General Hospital from 1822 to 1889, is thus stated by Townsend and Coolidge: Twenty-five per cent. of the cases were fatal. Treatment was heroic before 1850, transitional between 1850 and 1860, expectant and supporting since 1860. There is no evidence that the duration, length of convalescence or the fatality have been modified by treatment.[11]

Acute rheumatism is a disease, which if our art has not subdued, it is not for want of effort. To enumerate the drugs which have been used in this ailment would far exceed the limits of this address. More than once have sanguine hopes of a remedy been raised, soon to fade before experience. Of late years, salicylic acid and allied drugs have held the first place. It may be questioned if we have gained as much from them as many believe. These medicines relieve the pain, and lessen the fever more rapidly than any others of which we have knowledge. But relapses are more frequent than under other modes of treatment. The cardiac complications are quite as common as under any other treatment. They have no power either to prevent or to overcome the most dangerous symptom of this disease, hyperpyrexia. The duration as shown by length of stay in hospital is not materially lessened. The untoward effects of these drugs are common, often serious, sometimes fatal.[12] When we remember that these results are mainly drawn from experience in hospitals where patients are usually taken from bad, and put under good conditions, we must admit that the modern drug treatment is, at best, one of alleviation, and that this result is not gained without a considerable risk.

No drug has been found, even in the long list of synthetic medicines, which materially modifies the course or changes the result of typhoid fever. If figures are to be trusted, the only agent which may do this is cold water. If it be said that this is a drug, considering the use to which it is put, it is one which has no hurtful properties in itself, which can be safely, if judiciously, used, and which the pharmaceutist cannot utilize for purposes of gain.

The most trivial of acute diseases is coryza, com-

[1] The Annual Discourse delivered before the Massachusetts Medical Society, June 14, 1893.

[8] Internat. Medical Annual, 1893, New York and Chicago, p. 565.

[9] Address on Self-Limited Diseases (Medical Communications of the Massachusetts Medical Society), vol. v, Boston, 1836.

[10] Archives of Pediatrics, March, 1893, p. 252.

[11] Boston Medical and Surgical Journal, January 27, 1889.

[12] A System of Practical Therapeutics, Philadelphia, Lea Brothers & Co., 1891, vol. i, pp. 908 et seq. A System of Medicine, Pepper, Philadelphia, Lea Brothers & Co., 1885, vol. ii, pp. 51 et seq.

monly known as "a cold in the head." Its diagnosis is easy, its natural history well known. Its local manifestations are within sight. If drugs have power to abort or shorten disease, we should find proof of it here. Belief in their power is abundant, evidence of it is wanting. The harm that has been done by attempts to influence this disease will not be questioned by any one who has seen cocaine poisoning, or has had to treat the cocaine habit. Aurists tell us that the massive doses of quinine often used, may set in motion a train of pathological processes which have fatal possibilities. If we cannot do a little thing with drugs, we may well doubt our power to do a great thing. If we cannot cure a cold in the head, let us be modest in claiming the power to cure diphtheria.

Turning to the subject of chronic diseases, the name itself implies the inadequacy of our art to shorten them. Cures for consumption have abounded in the history of medicine. Our own time has given birth to many, yet it is generally fatal. Cures for cancer, even, have not been unheard of, yet its prognosis remains unchanged.

Dyspepsia, which has been called our national disease, still maintains its foremost position, in spite of the use of pepsin (so large that some of the great meat-packing houses have found profit in putting it on the market), and the multitude of digestive ferments with which the enterprise of our pharmaceutists has furnished us. The pithy prescription of a member of this Society, long since gathered to his fathers, "drink the hundredth stroke of the pump before breakfast," and the still more comprehensive one of Abernethy, "live upon sixpence a day, and earn it," [13] have cured more cases of dyspepsia than all the pepsins and triferments of the druggists' circulars.

As we turn the pages of the mass of literature on nervous diseases, a sentence from the first aphorism of Hippocrates occurs to us: "Life is short and the art long." Studying the drug treatment of these disorders, we find little to convince us that the good it may do is not counterbalanced by its possible influence for harm.

Among the new drugs which have been brought into use of late years, those supposed to have a tonic or stimulant effect upon the heart hold an important place. In acute disease, as the heart shows supposed weakness, one, often several, of these powerful medicines are advised, while in diseases of the heart itself they find their greatest field of action. That they may often be of service no one will deny. That they may do harm, no one who studies their toxic properties can doubt. That their power for good is limited is at least suggested by the fact that, since their multiplication, "heart-failure" appears with increasing frequency in our certificates of the cause of death.

The numerous synthetic drugs, of which the most largely used are antipyrin, antifebrin and phenacetin, have wide applications in disease, if one may believe all he reads about them. Prof. H. A. Hare says of these three drugs:

> "They have relieved an amount of human misery, resulting from painful manifestations of functional or organic nervous disease, which it is not in the power of the human mind to estimate, and this, too, in most cases, without any ill effects such as follow the opiates. . . . Nor have these products proved themselves limited to any one class of cases. They have proved a perfect wonderland of useful application, and there is certainly no drug ever discovered which is so universally applicable as antipyrin, the powers of which are almost as diverse as disease itself." [14]

The young practitioner, reading this statement by a teacher of therapeutics in a leading school, must feel that a panacea is almost found. Filling his pocket-case with these drugs, he goes on his way rejoicing in his power to relieve and cure. If he gives them to every patient who complains of pain, and attributes the relief to the drug, he will, for a time, be a happy man. It will not be long, however, before he meets with cases where the expected relief does not come. If he observes carefully and honestly, he will see harmful results in not a few cases. He is fortunate if he does not get thoroughly frightened by the effects of his remedies before long.

Let us examine the power of these drugs for harm. I take the facts which prove it from an essay by the same man who praises their power and safety so highly, to which was awarded the Boylston prize of Harvard University in 1890. I can give only a brief statement of the subject, referring those to the essay who prescribe these drugs without fear of consequences.

Antipyrin. 127 cases of untoward effects; 8 deaths; result not stated in 14 cases.

Antifebrin. 38 cases of untoward effects; 3 deaths; result not stated in 1 case.

Phenacetin. Three cases of untoward effects; no death.

Summing up these figures, there are one hundred and fifty-three cases in which the result is stated. Eleven were fatal, or about seven per cent. It is true that in most of the fatal cases the result was largely due to the disease for which the drug was given. It may be fairly said, however, that the chance of recovery was lessened by the disturbance caused by the drugs.

The serious character of the untoward symptoms recorded in these tables is shown by the fact that collapse, often described as "severe," "alarming," "profound," occurred in fifty cases; cyanosis in thirty-one; disturbance of the heart's action in eighteen; dyspnœa in nine; a purpuric state in seven.[15]

To determine correctly the effect of drugs in disease is one of the most difficult questions which the practitioner of our art has to meet. Experience is the source of nearly all the knowledge we have to aid us in answering it. Science has told us how some drugs, which experience has approved, produce their favorable effects; but the day of a scientific system of administering drugs has not yet arrived.

An accurate diagnosis is essential to trustworthy experience. Errors upon this point are the cause of many of the uncertain and contradictory conclusions which have been drawn from experience. Diagnosis is seldom easy, often doubtful, sometimes impossible. Having made a correct diagnosis, we must know the natural history of the disease. We cannot know the effect of a medicine in a disease unless we also know what will be its duration, the order of succession of its symptoms, and the probable result, uninfluenced by drugs. We must know the probable cause of the disease, for we cannot draw a fair inference as to the usefulness of a drug if the cause is still in operation. We must also know the action of drugs upon the system in health, and how to apply them correctly in

[13] Physic and Physicians, Philadelphia, 1845, Part i, p. 98.

[14] International Medical Annual, 1893, New York and Chicago, p. 4.

[15] Fever: its Pathology and Treatment by Antipyretics, by Hobar Amory Hare, M.D., etc., Philadelphia and London, 1891.

disease. We have all these facts in very few cases; in many cases we have certain knowledge of none of them. Ignorance of any one of the factors of the problem gives a wrong answer. To assert the value of a drug in phthisis, where it has been given in a case of catarrhal inflammation of the lungs, to ascribe the improvement which nature effects at the crisis of pneumonia to the medicine given at the time, to proclaim the efficiency of drugs of which we know so little as we do of many of the new ones which are daily brought into use, are examples of the errors which make experience so fallacious. To give drug after drug, perhaps the very one which has caused the disorder, to a patient suffering from chronic poisoning by arsenical wall-paper, is mortifying to the doctor, and calculated to bring the art into contempt with the patient.

The constitution and condition of the patient must also be taken into account. The tendency to disease, hereditary or acquired, the power of resisting its causes, the influence of surroundings, must be known before we can judge correctly as to the influence of drugs.

Even if the mass of recorded experience was that of competent observers, the question is so beset with difficulties that the answer must be a doubtful one. But, especially of late years, those men whose opinions are most to be valued have not much to say about the use of drugs. As I meet such men in consultation, I find that while they are careful in diagnosis, painstaking in investigating causes, attentive to the surroundings of the patient, they are cautious about advising powerful medicines. I think most thoughtful men will say that, as they grow older, they put less trust in drugs.

But much of the so-called evidence in favor of the usefulness of drugs is drawn from the reports of men whose argument is *post hoc, ergo propter hoc*. Not careful in diagnosis, undervaluing the power of nature, influenced by authority or the fashion of the day, they are always ready to try new remedies, and quick to report their supposed successes. They do not apply this argument to their failures. Often they do not report them, in which case their testimony is worse than worthless; it is misleading and dangerous. Some, too honest to conceal the truth, report their unfortunate results, but ignore the possible effect of drugs in determining them, offering some plausible explanation of them. We often read something like this: Dr. —— has treated twenty-two cases of typhoid fever by a certain drug, with twenty recoveries. Of the fatal cases, one was moribund when the treatment was begun, the other died of perforation of the intestine. "There are some people," says Paget "who seem to have a happy art of forgetting all their failures and remembering nothing but their successes, and as I have watched such men in professional life, years have always made them worse instead of better surgeons. They seem to have a faculty of reckoning all failures as little and all successes as big; they make their brains like sieves, and they run all the little things through, and retain all the big ones which they suppose to be their successes; and a very miserable heap of rubbish it is that they retain." [16]

The average patient listens with much more interest to the prescription of his physician than to his directions about his hygiene. Expecting good results from the drug, he often imagines that he feels them. So great is the power of hope that, even in incurable diseases, a temporary improvement often follows each new prescription. This power of hope is one of the chief articles of the materia medica of the quack. It is sometimes used by the educated physician, who calls it "expectant attention." From a recent system of therapeutics I quote extracts from an article written by a professor of therapeutics in one of the leading schools of the country:

"The physician who fails to avail himself in disease of the 'expectant attention,' drops one of the most important articles out of his list of medicinal agencies. . . . When a resident physician in the Philadelphia Hospital years ago, in charge of a large ward of women, I habitually used a solution labelled 'morphine,' which contained none of that alkaloid, but just enough quinine to make it conform in taste to the knowledge of the habitués of the institution, and in three cases out of five it aided in bringing comfort and rest, as well as did the genuine morphine solution. Some time ago, I gave a patient, with very minute and emphatic instructions as to the method of use, a prescription for pills of bread. Several months after, she came back to me and said, 'Doctor, why did you not give me that prescription sooner? It is the only thing that has reached my case, and I have had that prescription filled at the apothecary's for a number of my friends, with extraordinary results.'" [17]

The pharmaceutists give us a hint as to how far this sort of teaching has influenced our art, when they offer us the means to carry out such treatment. Within six months, the agent of a large manufacturer of "tablet triturates" offered me "blank tablets." The name he gave them will interest many of this audience. It was "Harvard Experimental Diagnosis Tablets." Setting forth their value to me from a business point of view, he told me, untruthfully I hope, that he had just sold five thousand to a physician in my own town. There can be but one opinion among honest men about this practice. It not merely weakens the distinction between the regular practice of medicine and the practice of quackery; it destroys it; it *is* quackery.

The germ theory of disease is passing beyond its first stage, and is taking its place as a real addition to the science of medicine. It has rendered great service to the art by adding to the power of preventive medicine. It has not done much for the drug treatment of disease. If it is believed that infectious diseases are caused by germs, introduced from without, the inference that drugs which kill them outside the body may destroy them after they have got in, is so attractive that it has led to many experiments in this direction. Drugs of highly poisonous properties have been largely used with this end in view. That harm has resulted from these experiments there can be no doubt. There is good reason to believe that in the hands of men who make facts suit their theories, life has been endangered, and even destroyed, by the reckless use of these drugs. No efficient and at the same time safe drug is now known which can destroy the germ within the system. The efficient germicides are dangerous, the safe ones are uncertain. It is too soon to say what advances in the use of drugs may result from the germ theory in the future. It may be that disease will yet be prevented, or even cured, by injecting substances into the system which may kill germs, directly or indirectly. It may be, to use the words of a believer in this hopeful prospect, that "the future of scientific medicine is in this direction, and that we have entered upon a field

[16] Clinical Lectures and Essays, London, 1875, p. 74.

[17] A System of Practical Therapeutics. Philadelphia, 1891, vol. i, pp. 41, 42.

that is to be cultivated vigorously, and which will give you results that will knock the conservatism from under your feet before many years." [18] Conservatism always will be a solid foundation for the practice of medicine. The memory of tuberculin is too recent to allow us to forget that a great man may reduce his theories to practice prematurely, and so shake the confidence of the public in our art.

It is my belief that nothing has done more to encourage reliance on drugs than the narrow definition which is given to materia medica and therapeutics. How restricted this definition is, is well shown by a study of the examination papers in these branches, as printed in the catalogues of Harvard University, since the graded course in medicine was established. Of the 291 questions in materia medica, 288 relate solely to drugs. The exceptions deal with articles of food. There are 164 questions in therapeutics; 152 deal with drugs only. Of the twelve exceptions to the rule, six are on the use of cold, one includes cold baths among antipyretic drugs, four refer to diet, while one is hardly an exception, "Course of acute rheumatism if left to itself; how can you improve upon this?"

Thus the narrow definition is perpetuated, and the student is led to look upon drugs as the most important part of these branches of the art.

In its broad sense the materia medica includes everything which can cure or mitigate disease. The Greek word from which therapeutics is derived signifies to wait on, to heal. Treated in this larger way, materia medica would no longer be, what the instructor in this department in the Harvard Medical School says it now is, "a most dry and uninteresting subject, which offers almost no attractions, and is, for the most part, a mere matter of memory." [19] Giving its wider meaning to therapeutics, it would include private hygiene, as it ought to do. Hygiene is the mother of our art. Medicine, surgery, obstetrics, all the specialties into which these subjects have been subdivided, depend for their successful practice upon an observance of its laws. Why should it not be given the place it ought to hold, as the source of the most certain and most effective powers we have over disease?

In a recent publication, the instructor in materia medica and hygiene in the Harvard Medical School says: "The old-fashioned method of teaching materia medica and therapeutics is, or ought to be, a thing of the past. In the best Continental schools these subjects are taught in a manner quite unlike that to which we in this country have been accustomed. Their teachers are not necessarily men of large medical practice. Indeed, the best of them are not practitioners at all. Their time is engaged in the study of the action of drugs and other remedial agents, and this, with necessarily more or less of their application to disease, they teach to their students, leaving by far the greater part of the practical side to the different clinical teachers." [20]

There can be no question that the subjects of materia medica and therapeutics, even with their present limitations, have outgrown the capacity of any one teacher. So far as the physiological action of drugs is concerned, it is true that it is better taught by a man whose time is devoted to scientific work. It is a branch of physiology, and its results are as certain as those of any other branch of that science. But when the application of these laws is considered, we pass from the field of truth into the tangled paths of experience. It may be clearly proved that a drug will contract the blood-vessels of a frog; it is not so certain that it will have the same effect upon a sick man, or that, if it does, it may not hinder rather than help his recovery. It may be taught by the man of no practical experience that, in the forming stage of sthenic pneumonia, large doses of veratrum viride will remove the excess of blood in the diseased part, and by paralyzing the general vaso-motor system, bleed the patient into his own blood-vessels. He may add that when consolidation has taken place, "one grave danger is failure of power in the right side of the heart," and that "under these circumstances a cardiac depressant would immensely increase the danger." [21]

It requires the practical knowledge which comes from experience to teach that the first stage of pneumonia has generally passed before the patient is seen; that, even if the crepitant râle is heard, the deep parts of the lung may be solid; or that, if the case is seen in its forming period, and directions are given in accordance with this theory of treatment, consolidation may occur in a few hours, and the danger of the drug be "immensely increased." [22]

The clinical teacher deals with the question of drugs as applied to the cases that come under observation at the moment. He may not touch upon drugs which are fresh in the student's mind. His instruction must reflect his own opinions, which may differ from those of his colleagues. Great as is the advance which the art of medicine has made since clinical teaching has become so important a part of the course of study, high as is the character of this teaching in the Harvard Medical School, there is need, I think, in all schools, of a wise and experienced man to give instruction in therapeutics, and especially in the uses and limitations of drugs. He should be competent to weigh evidence, to sift the trustworthy from the unreliable, the safe from the dangerous. He should have attained the ability which Hippocrates commends when he says, "I look upon it as being a great part of the art to be able to judge properly of that which has been written." [23]

(To be continued.)

[18] Sternberg: Transactions of the Association of American Physicians, vol. vii, p. 86.
[19] Bulletin No. 4 of the Harvard Medical School Association, p. 62.
[20] Loc. cit., pp. 63, 64.
[21] System of Practical Therapeutics, Philadelphia, 1891, vol. i, p. 23.
[22] Flint: Practice of Medicine, Philadelphia, 1886, p. 156.
[23] The Genuine Works of Hippocrates, Sydenham Society, vol. i, p. 407.

Original Articles.

A CONSIDERATION OF THE PARÆSTHETIC NEUROSIS.[1]

BY JOSEPH COLLINS, M.D., NEW YORK,
Instructor of Nervous Diseases in the New York Post-Graduate Medical School; Neurologist to the Demilt Dispensary, etc.

SOME two years ago, while attending the meeting of the Southwest German Neurological Society at Baden-Baden, my attention was attracted to a paper read by Dr. Leopold Laquer, entitled, "A Special Form of Paræsthesia of the Extremities." I remembered that we had seen a number of such cases in the clinic at the Post-Graduate School, and determined on my return to make a study of them with a view to their classification.

[1] Read before the New York Neurological Society, June 6, 1893.

The paper which I present to you this evening is based on an analysis of forty-three cases in which the symptom-complex, hereafter described, was the only evidence of illness. I have endeavored to exclude from these statistics other cases of acro-neuroses, which, while they present some of the symptoms of the following cases, have other individual symptoms more pronounced, such, for instance, as ignipedites, waking palsy, and the like. Before entering into a discussion of the details of the form of paræsthesia to which I wish to call your attention, I should like in the first place to give the clinical history of a single case that shows a typical picture of this most distressing disorder.

Mrs. L., thirty-nine years old, is married and does house-work, including needle-work, washing and scrubbing. She was born in Germany, and has a good family history. The patient is a stout, strong, well-nourished-looking woman, and gives the following history: About five years ago she began to complain of "pins and needles" sensations in both hands, the right worse than the left. This continued, off and on, for two years. She was then taken with a severe flooding, and since that time the sensations have been very much more troublesome. As a rule, they come on in the following way: She may go to bed quite well, with an entire absence of any sensations in the hands, and about four o'clock next morning she is awakened with a dumb, sleeping sensation, as if electricity was passing through them, or, as she expresses it, "as if her hands had gone to sleep, only a hundred times worse." These sensations persist after she arises; and rubbing, using, moving or chafing the hands, as is often done to restore the circulation, gives no relief. The symptoms are somewhat ameliorated when she gets up and stands or walks about with the hands hanging by the sides. During the day, when she works about the house, the paræsthesiæ are not present; but when she stops and takes up sewing or sits quietly or lies down, and particularly on the following night, the sensations are very severe. In this patient the paræsthesiæ never occur in the feet. There are no objective symptoms. Her general health is good, appetite normal, bowels constipated, menstruation regular but excessive; she has headaches occasionally, and gets tired much more easily than formerly.

It will be seen that the clinical picture, in brief, is as follows: The sufferers from this affection are in fairly good health; that is, were it not for the paræsthesiæ, they would not have occasion to consult a physician. The paræsthesiæ which they complain of are made up of gnawing, boring, "pins and needles" sensations in the extremities, particularly the upper, and involving the fingers, hands and forearms, often of both sides, but not infrequently of only one. These sensations are not limited to the distribution of any one particular nerve in the extremity, but spread over entire segments of a member, such as a hand or forearm, with equal intensity. There is rarely any pain in the sense in which that word is ordinarily used. Using the word pain as the antithesis of pleasure, this paræthesia furnishes a form of exquisite pain. While the paræthesiæ lasts and in the interim between attacks, which is always a variable period, there are no fairly constant objective phenomena. Occasionally, the circulation of the extremities is evidently somewhat sluggish. There is absolutely no tenderness on pressure over any of the nerves of the part, and no perceptible changes of a trophic, motional or degenerative nature. The affection shows itself intermittently in paroxysms, and the period of the twenty-four hours when an attack is most likely to show itself is from four to six in the morning. The perverted sensations at this time become so severe as to awaken the patients and put an end to farther rest. Another favorite time is a corresponding hour in the afternoon. As a rule, however, the attacks in the day-time have a very close relationship to the work that the patient has been doing. In one subject to this form of paræsthesia an attack can almost always be precipitated by doing sewing or any other needle-work and by washing or scrubbing. There is no loss of sensibility to any form of sensorial irritation, nor is there loss of muscular strength on testing with the dynamometer. The patients complain, however, that the strength of their arms is more easily exhausted than formerly, and they cannot so easily sustain effort. In some cases the patients will describe other subjective sensations; but, in the main, they are as I have given them.

In studying the etiology of this affection, I find that the average age of the patients is just above thirty-nine years. Of the 43 cases on which this paper is based, 35 were women, eight were men. The age ranged from twenty-three to fifty-nine. Of the 43 cases, 26 were in the decade between thirty-five and forty-five years. Of the 35 women in the series, seven had suffered at some not very remote period either from metorrhagia or flooding.[2]

I want to emphasize this point somewhat, as it seems to have an indirect bearing in the etiology. Of the 43 cases, six had suffered previously from rheumatic or gouty pains, and of these three were males. In eight of the cases there was evidence of more or less anæmia. The most striking factor in the etiology, however, is the occupation. Of the 34 females, about 55 per cent. did either washing or scrubbing, crocheting or needle-work of some kind. Of the males, one was a waiter and dish-washer in a restaurant, another was a carpet-stretcher. Of the females, five were nursing children, two were pregnant. The time of the year in which the paræsthesiæ were most troublesome does not seem to be pertinent, and changes in the weather have no effect except that these patients naturally become, after a time, anything but cheerful, and inclement weather adds to their gloom. Neither heredity nor neuroses, such as hysteria, neurasthenia, etc., can be associated with this form of paræsthesia. Schultze has recently stated[3] that the sudden exposure from heat to cold has a causative influence, but I have been unable to find it in my cases, nor have I been able to induce the paræsthesia artificially in this manner, as will be spoken of later. Regarding disturbances of digestion being at the bottom of the trouble, as has been positively stated by Saunby, I must say that the digestive functions were carefully studied in many of the more recent cases of this series,

[2] Of 183 cases selected from the literature, including our own cases, the following etiological bearings are seen:

Number of females 151, males 32. Average age 40.7 years.

Number of cases between	15	and	25	. . .	.	19
" " "	25	"	35	. . .	.	43
" " "	35	"	45	. . .	.	58
" " "	45	"	55	. . .	.	37
" " "	55	"	65	. . .	.	23
	Over		65	. . .	.	2

Of the 151 females in which the occupation was noted, 39 did scrubbing and washing, 48 did needle-work, and 23 did house-work. In two cases only was direct heredity seen to be manifest.

[3] Deutsche Zeitsch. f. Nervenh., 3d Vol.

and rarely was any particular disturbance of it found. When alcohol is apparently a causative factor of the paræsthesia, it should, I believe, be classified under the toxic variety. What relation this form of paræsthesia bears to autotoxæmia and the lithæmic constitution is not so easily disposed of. Unquestionably, there exists in the minds of many physicians who have observed this neurosis some illy-defined ideas as to the relationship of lithæmia and this form of paræsthesia; but I gravely doubt if there be any closer relationship between it and the lithæmic diathesis, than there is between lithæmia and the development of neurasthenia or some of the vaso-motor neuroses. Lithæmia in itself is the result of deficient oxidation of proteid matters in the blood; and as the manifestations of this form of paræsthesia is through the peripheral blood-vessels it is extremely plausible that the paræsthesia is not the result of the lithæmia but one of the factors on which the lithæmia itself is dependent. We are forced to this conclusion by the results of medication directed to the lithæmic state alone, which is very unsatisfactory. The other hæmatotoxic conditions of gout and rheumatism do not seem to have any causative relationship. Bodily fatigue, over-exertion, poor nourishment and ventilation, lactation and in fact anything that lowers the vigor and health of the body, are powerful predisposing factors. The hands are the parts affected most frequently. In 43 cases both hands were affected alone in more than 50 per cent. of the cases; all four extremities in nine cases, and one extremity in ten cases. When the paræsthesiæ came in one extremity at a time, I do not mean to say that this one part was solely the one affected. The following case illustrates how the sensations would leave one hand and go to the other.

Mrs. A., forty-one years old, American, married, and does house-work. Personal and family history good. She has never had a severe sickness except uterine inflammation and metrorrhagia after a miscarriage. For the past four years she has been troubled with boring, heavy, "pins and needles" sensations in the hands, and less in the forearms. She never had the sensation in both hands at the same time, but frequently when it passes away from one hand it appears in the other. She noticed this trouble for the first time shortly after the miscarriage already mentioned. These tingling and dumb, sleeping sensations in her hand awaken her early in the morning, and rubbing, squeezing and using her hands does not seem to dissipate the sensations. The greatest relief is obtained by wrapping her hands in flannel and applying dry heat. The paræsthesiæ are slightly more troublesome in wet weather; it never affects the lower extremities. If she washes to-day the painful sensations to-morrow would be almost unbearable. She suffers considerably from headache. Before concluding what I have to say about the etiology of this form of paræsthesia, I wish to refer again to the possibility that metorrhagia has more than a casual relationship in precipitating this affection and in helping to keep it up after it occurs. Of the 34 women in this series of cases no fewer than 12 gave a history of flooding at some time, before or during the tenancy of the paræsthesiæ. I do not wish to be quoted as saying that flooding is the cause of this paræsthesia, but that it sometimes appears to be an etiological factor. The menopause I do not find to stand in close relationship although the preponderance of cases is between thirty-five and forty-five years. These patients are not necessarily at the change of life, and as a matter of fact most of them are not.

One of the most aggravating cases that we have had to treat at the clinic was that of a lady sixty years old who gave a typical history corresponding to the one above, except that the paræsthesiæ affected all the extremities. This patient, notwithstanding her age, was menstruating regularly. Two cases (women) gave a history of excessive sexual intercourse, but with "withdrawal" on the part of their husbands. This had been practised for some years to avoid conception. It is admitted by gynæcologists that indulgence in this practice is followed by a condition resembling sub-involution and metrorrhagia as a natural sequence.

Taking these etiological factors into consideration, one is led to the question as to what the probable seat of the trouble may be. Nearly every one who has written on paræsthesiæ has had something to say on this point, in which he differed from others. It seems to me that we can exclude any trouble in the central nervous system and spinal cord. It is scarcely necessary for me to enter into details for the basis of this statement.

I am of the opinion that this form of paræsthesiæ is due to defective innervation in the blood-vessels which causes a low degree of blood-pressure and lack of proper blood-supply to the terminal branches of the peripheral sensorial nerves. That is, the vascular changes may be secondary to central exhaustion. The perception of paræsthesiæ is, of course, a central process. It is probable that frequently in the beginning this paræsthesia is set up in a predisposed neurotic subject, and as a result of the combined influence of central cortical over-stimulation (from the reception of the peripheral impressions) and the suffering of the patient, acts upon ganglionic cells in certain areas of the cortex and produces exhaustion. This may be called a functional exhaustion similar to that produced and observed by Hodge. The causative factors of this form of paræsthesia are extremely chronic and remedial measures when not associated with rest are rarely beneficial. While rest, mental and bodily, is frequently followed by great relief I am therefore inclined to agree with Laquer that it may be an exhaustion neurosis.

On a few of these patients I instituted some experiments for the purpose of corroborating the opinion that vascular changes may start anew the paræsthesiæ. If the patient, whose history I have detailed at the beginning of this paper, was made to hold both hands above the head the paræsthesiæ would set in with such intolerable severity after four minutes that she could not keep them in this position. If one hand was held above the head and the other by the side the paræsthesiæ would come on in the uplifted hand while the other hand would remain free. Putnam has noticed a similar condition in some of his patients. After the hands had been elevated for a few minutes and the paræsthesiæ had appeared and they were then allowed to hang down they could be seen to become dusky in color and swollen-like, showing that there was more or less vascular congestion following a transient anæmia.

Another patient who had paræsthesiæ in the hands alone, had her hands dipped in water of the ordinary temperature, and allowed to remain there for from five to ten minutes, with no resulting paræsthesiæ. But if the hands were first dipped in very hot water

and then in iced water the tingling sensations would come on after a few minutes. If the order was reversed, that is putting one hand in the cold water first and the hot water afterwards, the paræsthesiæ did not seem to occur.

Another patient, a male, shoemaker, who suffered from paræsthesiæ in all four extremities, was experimented on with Fleming's Tincture of Aconite, a drug which in small doses is known to lower blood-pressure and produce a lessened amount of blood, particularly to the periphery of the body with a high degree of certainty. One drop of this tincture was given every fifteen minutes to this patient when he was free from the paræsthesiæ, and almost invariably every time he was subjected to this treatment, by the time he had received the fourth dose the paræthesiæ would occur.

It was not, I believe, the tingling which is caused by the absorption of a considerable amount of aconite into the system for two reasons: first, the tingling that results from large doses of aconite occurs in all parts of the body in the order of their sensitiveness as determined by Weber; and secondly, because in the same patient, veratrum viride, a drug which does not produce tingling, was followed in its administration by similar results to those obtained by aconite. Such experiments are in no way conclusive, but they are suggestive as to the probable conditions antecedent to the development of the paræsthesiæ. The fact that the hour out of the twenty-four when these sensations come on with considerable certainty is in the early morning, a time when the ebb of life is at its lowest tide and the blood-pressure registering nearest the base line, is another bit of evidence in favor of the idea that the essential preceding condition in the development of the paræsthesiæ is a vascular one. That it occurs when the patient lies down as, for instance, in the day-time, and after use of the parts, as in working, scrubbing or needle-work, etc., is not inconsistent with this line of thought.

I cannot agree with some writers on the subject who say "we shall not have to look far for a solution of this difficulty. It is evident that we have faulty or imperfect actions in some of the more important tissues or structures of the ecomomy, such as degenerative changes in the vessels, etc." From a rather careful study of the vascular system in these patients with the aid of the sphygnograph I must say that it is but rarely that I have found any indications of arterial degeneration.

Before saying a word in regard to the treatment which has been found most successful with these patients I would like to suggest a classification of the paræsthesic neurosis, and illustrate each of the divisions by citing a typical case. Of course, it will be understood that I rigidly exclude the neuralgias, neuritis, ignipedites, etc. The following classification is principally on an etiological basis:

(1) Emotional.
(2) Mental.
(3) Neurasthenic.
(4) Toxic.
(5) Waking numbness.
(6) The one under consideration which may be called an occupation paræsthesiæ, so often is it associated with a certain class of occupations.

As an example of the first form, I cannot do better than to present the notes of a case reported by Dr. Dana. A gentleman forty years old, a cotton-broker, suffered from almost constant sensations of numbness, prickling, etc., of the left arm and hand, extending up to the elbow. The symptoms annoyed him to the last degree. There was no anæsthesia or objective changes in the hand, and the patient was in good general health. He was an excessive smoker, but interdicting this and subjecting him to various forms of treatment was followed by no benefit. Finally, after some months cotton went up and the affection gradually left him.

As a type of the paræsthesiæ depending upon a disordered mental state the following case of galeanthropy or *Katzensucht*, as it is termed by the Germans, may be related. A young woman twenty-seven years old, who had inherited marked neurotic taint, her mother having died of cerebral softening at forty years old, one aunt of insanity at thirty-three years old, and one great-aunt had epilepsy. The patient herself was always very nervous when a child. For a considerable time she had complained of inability to sleep well, and in the morning of most distressing sensations; tingling, numb, pinching sensations in the hands and forearms, particularly the right, and in the feet worse than in the hands. These sensations persisted most of the day, but disappeared toward evening. In addition to the paræsthesiæ of the extremities she says there is an area about as large as the hand above her right buttock where the sensations also appear. After suffering from these paræsthesiæ for some time she had a transient attack of the mania known as galeanthropy. The attack come on in the following way: After some very trying domestic infelicities she was left alone one day, and was sitting brewing her troubles, when she noticed that a picture of the "Father of his Country," hanging on the wall on the opposite side of the room, suddenly began to misbehave in a most remarkable manner. Then all the other pictures on the walls followed this illustrious example. This kept up for some time; and then she thought she was being transformed into a cat; and after that she acted like a cat, walked on all fours, spit and scratched when any one came near her, would not let them undress her or put her to bed, would eat only off the floor, tried to scramble up the bed-post and sides of the room like a cat, etc. She imagined she was consorting with other felines, and, in fact, gave quite a typical history of this form of alienation. After quite a protracted treatment this patient recovered from her mental affection, though she still has the paræsthesiæ occasionally.

The neurasthenic form is really quite common, and it is unnecessary to quote a very elaborate history. The following case seen in private practice may be taken as an example:

X., a married lady of forty-four years, was bred a lady of leisure, but circumstances at present compel her to manœuvre with a small amount of money invested in a business in order to make a living. As a result, she has developed quite a typical neurasthenic condition of the cerebral type. She has head-pressure and sensations, morbid fears and dread, loss of strength and ambition, and, added to this, paræsthesiæ of the hands and feet, which are extremely distressing. When the neurasthenic symptoms have their good days, the paræthesiæ are forgotten, and the reverse.

The toxic forms of paræsthesiæ, of which we see so many examples, are, I believe, mostly the indications of beginning multiple neuritis. Frequently, however, they do not go to extensive changes in the nerves and

muscles, and we see the manifestations of toxicity only in the paræsthesiæ. Many writers have spoken of this form of paræsthesiæ, and it is not infrequently associated with malarial poisoning, moderate alcoholism, and the ingestion of other poisons. In the following case it resulted from excessive tea-drinking:

C. B., female, fifty years old, native of England, married. Has had nine children. Has always drank a glass or two of beer a day, but drinks mostly tea, which is taken strong and often. She thinks seven or eight cups a day would be a low average. She says she keeps the tea on all the time, and frequently takes it in place of food. She reached the menopause about three years ago. For upwards of two years she has complained of burning, gnawing, prickling sensations in the feet and legs. Sometimes these sensations are really very painful. More recently she has felt similar sensations in the arms from the elbows down, and in the face. All around her mouth she gets prickling "pins and needles" sensations; and her face gets a sort of numb, wooden feeling in it, so that she has to put up her hand to feel if her face is really there. The appetite is fairly good, bowels constipated, and she suffers considerably from frontal headache and gets low spirited often. This patient, when tea and beer were entirely forbidden her, and she was put upon a nutritious diet with nux vomica and out-door exercise, improved steadily, so that now she is practically well.

Several other cases could be cited where the paræsthesiæ have disappeared after a prolonged treatment with anti-malarials.

Under the title of "Waking Numbness," Dr. A. H. Smith has described four cases of a condition which would seem to be a form of paræsthesiæ, to which is added more or less complete temporary abolition of motility. In a case presenting himself at the clinic, a barber thirty years old, of strong neuropathic predisposition, complained that when arising in the morning his hands were powerless, feeling as if he "had bowled tenpins too long the night before and had no strength in them," and with this, tingling, numb sensations. He had been in the habit of taking a nap during the slack hours in the afternoon, but he was obliged to forego indulging himself in this direction, as the numb feelings were sure to come on after awakening. This man improved under the use of galvanism, tonics, invigorating baths and out-door exercise, but he was lost sight of before he was completely well.

Then there are the paræsthesiæ that come with rheumatism, gout, arthritis, etc.; but they should be included under the division of toxic paræsthesiæ. We have had many good examples of the paræsthesiæ resulting from a combination of rheumatism, bad nutrition and depravity. One young lady, a dancer in a well-known ballet extravanganza, complained of a condition very much resembling the history just detailed. She had less periodical and more continual impairment of strength than did the last patient. She was very anæmic, run down, badly nourished, kept late hours, used enormous amounts of cosmetics containing lead, and had previously suffered from rheumatism. Her improvement was very slow, on account of the fact that necessity compelled her to keep on with her occupation and the harmful prerequisites which were incident to her business.

These illustrative cases of paræsthesiæ have been detailed for the purpose of showing that the paræsthesic neurosis presents itself under several different forms; and, with some license, they can be grouped as I have indicated. Recently, Schultze, of Bonn, has published an article dealing with the form of paræsthesiæ that I have considered in the first part of this paper. He has given to it the title of "Acro-paræsthesiæ." If I am right in my contention for the above classification, this term is not sufficiently definite to warrant admitting it to our nomenclature. Acro-paræsthesiæ simply means paræsthesiæ of the extremities. You will admit that the forms of paræsthesiæ that I have mentioned are of real occurrence, and could probably duplicate the cases I have detailed by a large number of cases.

Regarding the therapeutics of this special form of paræsthesiæ I can only admit and concur in what all previous writers have stated, namely, that we have no specific remedy. In my experience, prolonged rest has been the most important beneficial agent, particularly when restorative treatment is added.

I consider the administration of neurotics and depressants, such as antipyrin, phenacetin and the like, positively harmful. I have not found it necessary to treat specially and individually the digestive tract, for, as has before been stated, it is not customary to find it seriously at fault. Too much emphasis cannot be laid upon the point that everything which tends to exhaust these patients or in any way interfere with their vitality should be controverted. The use of the faradic current, in the shape of the faradic local bath, as recommended by Laquer, seemed to be very beneficial in two cases that have been under continuous treatment during the past winter. In fact, I may say that one of these patients has apparently recovered under this treatment after she had acted upon the advice to wean her baby, which she had been nursing for a long time. The galvanic current has not given anything more than temporary relief. So far as treatment has been given with directness to combat any lithæmic diseases that have been supposed to exist, I must say candidly that I have seen no startling results. Some of these patients have been on spring water and mineral acids without any beneficial results.

The plan of treatment which is most beneficial is regulation of the diet (particularly by limitation of the nitrogenous food-stuffs), quiet out-door life, change of occupations and habits, and the administration of restoratives.

A list of the literature bearing on this subject is herewith appended:

Aulde. Medical Bulletin, p. 292, 1887.
Berger. Breslauer Artzl. Zeitsch., Nos. 7 and 8, 1879.
Bernhardt. Neurolog. Centrallb., July 1, 1890.
Chapman. Medical Times and Gazette, 1863.
Cohen. Arch. General de Med., October, 1863, etc.
Dana. New York Medical Record, p. 57, 1885.
Dodge. Medical News, July 30, 1887.
Haig. London Lancet, September 26, 1885.
Hodge. American Journal of Comparative Medicine, 1891.
Hanfield-Jones. Studies in Functional Nervous Dis., London.
Laquer. Neurolog. Centrallb., p. 188, 1893.
Mitchell. Lecture on Diseases of the Nervous System, Philadelphia, 1885.
Nothnagel. Deutsch. Archiv. f. klin. Med., ii, p. 173, 1886-7.
Ormerod. St. Bartholomew Hospital Reports, 1883.
Piotrowski. Przeglad lekarski Krakow, No. 35.
Putnam. Archives Med., p. 147, 1880.
Rosenbach. Centrallb. f. Nervenheilk. u. Psych., xiii, 1890.
Saunby. London Lancet, September 5, 1885.
Sinkler. Medical Times, p. 841, 1884.
Smith. American Journal of Medical Sciences, p. 411, 1887.
Southey. St. Bartholomew Hospital Reports, vol. xvi, p. 16.
Squire. London Lancet, December 4, 1886.
Schultze. Deutsch. Zeitsch. f. Nervenheilk., vol. iii, 1893.

APPENDICITIS FROM THE POINT OF VIEW OF THE PHYSICIAN.[1]

BY GUSTAVUS ELIOT, A.M., M.D., NEW HAVEN, CONN.

Recent years have witnessed great advances in our knowledge of inflammatory affections in the neighborhood of the cæcum. The vermiform appendix now occupies a position of great pathological interest and importance. The proper management of inflammation of this organ is a subject in regard to which eminent authorities still hold very dissimilar opinions. Every practitioner is likely at any time — it may be to-morrow, or next week, or next year — to meet a case of appendicitis, and to be confronted with the question: What does modern science teach should be done for the patient?

The responsibility of the practitioner in these cases can scarcely be overestimated, because the danger of a fatal result is so great, and because the life of the patient so often depends upon his decision. The intrinsic tendency to recovery is slight.

In post-mortem examinations it is possible to distinguish cases in which the disease is plainly due to the presence of a foreign body, and those in which it is impossible to find any such cause. Cases in which the inflammation is not dependent upon a foreign body, and which are distinguished as catarrhal, are the ones in which the symptoms sometimes subside in two or three days. Frequently, however, by the death of tissue, they become closely allied, as regards their ultimate results, to cases of the first class, for the dead tissue is practically a foreign body.

The results of appendicitis are various. Sometimes the inflammation quickly undergoes resolution, the symptoms subside, and the patient gets well without appreciating the danger through which he has passed. In other cases the peritoneal cavity early becomes infected, and general peritonitis and, as a rule, death quickly supervene. In still other cases a chronic abscess forms. This may burst and cause general peritonitis and death; or it may undergo spontaneous evacuation and result in death or recovery; or it may be opened by the surgeon, and terminate in death or recovery.

From an etiological, as well as from a pathological point of view it is therefore easy to see that the patient with appendicitis has many chances of his disease terminating fatally. It is the obvious duty of the physician to remove his patient as far as possible from the chances of a fatal result.

Before pus has formed, before ulceration has perforated the coats of the appendix, and before the appendix has become gangrenous and sloughed, the danger to the patient is a prospective one. During this stage of the malady, the physician must adopt a course of active medical treatment. Morphine should be administered in large doses subcutaneously, and should be repeated at short intervals until the pain is entirely relieved. A mustard plaster should be applied until the skin is reddened, and this should be followed by hot flaxseed poultices. A saline cathartic — sulphate of magnesia, in drachm doses, is the best — should be repeated every hour or two, until copious watery movements from the bowels occur. These measures tend to relieve the congestion of the intestinal mucous membrane, and to modify the inflammatory action. If the case is one of so-called catarrhal appendicitis, in which there is no foreign body and no abnormal concretion giving rise to the inflammatory process, the inflammation may undergo speedy resolution and the patient quickly become convalescent. But, on the other hand, resolution may not ensue, and the patient may not get well.

If, however, the trouble is caused by a foreign body, or an intestinal concretion, the measures above indicated will do very little good, except to keep the patient quiet, while the doctor is thinking what to do next.

Cases of this kind, and cases of catarrhal appendicitis, which have not undergone resolution, may be classed together. They are of great gravity and importance. Unfortunately, during the first stage of the disease it is generally impossible to tell just what the cause of the trouble is. It is, therefore, playing a game in which the odds are strongly against both the patient and the physician, to continue indefinitely the treatment which I have outlined. The most important point is to decide how long this treatment may be safely continued.

Statistics will in time doubtless settle the question with reasonable certainty. They have not done so yet. It is, however, known that, in many cases, the dangerous results, suppuration, sloughing and perforation occur very quickly, sometimes as early as the third or fourth day. The risks of temporizing with a suppurating, gangrenous or perforated appendix are so great that no man who has any conscience ought to hesitate for a moment to advise its removal. The sun has nearly set upon the day in which the surgeon boasts with pride, as of an important operation, of having incised a large perityphlitic abscess. The day will soon dawn — it has already dawned for some — on which such a performance will be mentioned only to illustrate the carelessness, the stupidity or the mistake of the man who watched the abscess develop.

The question then is: When shall the diseased appendix be removed? It has been the fashion for the surgeon to say: You must call upon me to tell you when the operation should be done. This is pernicious teaching. It is time that the physician should turn about, and say to the surgeon: when I want you, I will send for you. When I send for you, bring your ether cone and your knife.

As I have said statistics have not yet told us just when to operate. But the daily newspapers have told, to him who reads between the lines, that the patients die when the operation is delayed. It is certain that the fourth day of the disease is, in some cases, too late to operate and save the patient's life. There is very little satisfaction in operating and then seeing the patient die. The third day is, to many of these cases, a critical one.

To return to the former question: How long may medical treatment be continued? My reply is for not more than twenty-four hours, and not later than forty-eight hours, from the commencement of the disease, unless distinct evidence of positive and continuous improvement is observed. If it is not observed, call upon a surgeon to operate, and call upon one who will operate. In this way alone will you do your duty by your patient.

I doubt not that some one, who desires to pose ostentatiously as a conservative, will jump up, when I sit down, and tell you that I am young and inexperienced. Concerning these points I have nothing to say.

[1] Read before the Connecticut Medical Society, at the one hundred and first annual meeting, at Hartford, Conn., May 25, 1893.

What I wish to impress upon you is that the experience of the profession during the last few years teaches that an inflamed appendix should be removed after forty-eight hours, if marked evidences of resolution of the inflammation have not appeared by that time. To be sure all patients, who are not operated upon, will not die; but many will die, if the operation is postponed much later than the period mentioned. If you think that I am wrong, tell me: Have you ever heard of any one who removed an inflamed appendix, who was sorry because he had not postponed the operation until a later day? You know that many fathers and mothers have wept bitterly over the loss of a loved child, who died because the surgeon did not operate until the disease had passed beyond the range of his resources.

Now, my dear brother physician, do not try to shirk your own individual duty and responsibility, by calling in a surgeon and throwing the responsibility upon him; and, if he sacrifices the patient's life, do not sit stroking your beard with a look of sanctimonious resignation upon your face, while you explain that the eminent authority, who was called in consultation, advised postponing the operation, or against operating at all. Call a man who will operate at once, and who will operate well, and call him early before the case gets complicated.

Do I hear some one say that the operation increases the danger of the patient's dying? Let me ask again: How many of you have heard of any patients who have died from the disease or the operation, when the appendix was removed before suppuration, gangrene or perforation had occurred? I am sure that such cases are exceptional. I advise you to adopt a course which brings safety to your patient, which removes him from very great danger to his life, or at least from a prolonged and dangerous illness, by a surgical procedure, which increases very little his liability to death.

This is genuine conservative surgery. I speak not as a surgeon who is anxions to use his knife at every possible opportunity, but as a physician who recognizes the duty of deciding what is best for his patient, and of making every effort to have the right thing done at the right time.

One suggestion has been made in this connection which is deserving of respectful consideration. Some have advised that temporizing measures should be employed, in the hope that the acute symptoms may subside, and that, after they have disappeared, the operation should be performed. The danger of the operation is less, they claim, after active inflammation has passed away, than while it is still present.

There are several objections to following this plan. In the first place it is very questionable if it is wise to operate upon a patient after his first attack, if all symptoms of the trouble have passed away, for it is well recognized that many persons suffer from a single attack, and have no recurrence. Although the danger from the operation is not very great, yet it is sufficiently great to lead us to advise any one, with considerable hesitation, to submit to the operation, when he is in apparently good health. A better plan is, after the patient has recovered from the primary attack, to warn him of the danger of a subsequent attack, and, if the second attack ever occurs, to advise immediate early operation.

Another objection to the plan of waiting for the subsidence of the acute symptoms is that it is impossible to distinguish cases of catarrhal appendicitis, which may undergo resolution, from cases due to the presence of a foreign body, which rarely undergo resolution. Most cases of the latter variety, and many of the former, do not undergo resolution, but speedily getting worse, pass beyond the first stage, and become complicated by suppuration, perforation or gangrene. These complications are very serious. They increase very greatly the difficulty and danger of operation, and very often render a fatal result inevitable.

For these reasons there seems no occasion to question the wisdom of the rule already laid down: That the appendix should be removed within forty-eight hours of the commencement of inflammation of the organ, unless marked improvement is observed after twenty-four hours of medical treatment.

The risk of a fatal result being hastened by an operation, carefully performed, while the case is still uncomplicated, is very slight compared with the increased danger of death if the operation is delayed until an abscess has formed, or the tissues have sloughed, or ulceration has resulted in perforation.

Clinical Department.

A CASE OF PREGNANCY COMPLICATED BY PNEUMONIA AND EMPYEMA.

BY GEORGE A. CRAIGIN, M.D.

I HAVE ventured to record the following case because it is rather unusual; few are reported; and a number of practical questions are suggested.

The patient was a married woman, thirty-four years old. She was small of stature, but well developed and nourished. She had had three children; all now living and well. Her previous history was excellent; no illness of any account.

The early part of the present trouble is a little obscure. About the middle of December, 1891, she was taken suddenly ill with high fever and severe pulmonary symptoms, suggestive of *la grippe* with pneumonia. She had been ill nearly a week when I saw her on December 24th.

I found her sitting up in bed, in great distress; the eyes suffused; the face flushed a dull red; moderate cyanosis. Respirations shallow, 48 per minute, the movement most marked at the left apex; the pulse 140, regular, full, of fair strength; temperature 103.4° F.

The condition of the lung on the right side was doubtful. The respiratory movement was imperfect; the resonance fair; respiratory murmur faint, having in the lower half very little vesicular quality, and obscured by numerous sticky râles (possibly a resolving pneumonia). On the left side the resonance was fair in the upper two-thirds; dull at the base, front and back. The respiratory sounds were normal at the apex, faint at the base, with diminished voice — apparently due to a moderate pleural effusion. The abdomen was somewhat enlarged by the pregnant uterus at five to six months.

The patient's chief complaint was of great distress for breath and a constant harassing cough, so that she could not sleep and could scarcely speak. The severe dyspnœa was at first controlled very satisfactorily by

[1] Read before the Boston Society for Medical Observation, April 3, 1893.

nitroglycerine (gr. $\frac{1}{100}$) every four hours; but in a few days the effect wore off.

During the first forty-eight hours the temperature fell by crisis, the pulse going with it; but the respirations remained high. The fall of temperature and pulse was probably due to the crisis of a pneumonic process; but a reason for the sustained high rate of respiration was found in a steadily increasing effusion in the left pleural cavity. By the 29th of December, the twelfth day of the disease, this had reached the third rib in front, and the heart's apex had been pushed under the sternum.

The condition of the right lung remained unchanged, apparently useful only at the apex. The left chest was aspirated in the seventh space, below the angle of the scapula; and forty-five ounces of sero-pus withdrawn (on standing one-eighth pus).

The operation gave a little relief to the distressed breathing; but cough became exceedingly troublesome, the sputum thin and frothy (perhaps from œdema). Repeated doses of morphia (gr. $\frac{1}{4}$), with atropia (gr. $\frac{1}{100}$), gave only short naps. She had to sit up all the time. Yet strength and general condition seemed good.

The temperature, which fell to normal on the morning of the aspiration, never rose again above 100° F. The pulse remained over 110, often 120, during the following week; and the respirations ran between 45 and 60, as a rule. The symptoms remained much the same, though dyspnœa and cyanosis became more marked as the effusion increased.

By January 8th the left chest was again filled to the third rib. Forty ounces of pus were aspirated at the same place as before. That night severe stabbing pains on respiration were felt in the right side, and retraction of the lower intercostal spaces during inspiration was noted. The physical signs on this side remained the same.

In spite of everything, the patient's strength held out well, and she was able to walk about the room when her bed was being aired and made up.

At the end of ten days (January 19th) the chest was full as before; but during this time the patient had grown steadily worse. Dyspnœa was severe, the respirations during the last week scarcely ever falling below 60 day or night. Sleep was almost impossible. There was constant epigastric distress, much worse after the lightest meal of milk or broth; so that very little nourishment was taken. Cyanosis grew marked — the face gray and anxious. The pulse fell some in rate, but became irregular. The sputum was considerable — thick, muco-purulent. The general strength was failing noticeably. She was now over six months pregnant, and fœtal movements were distinctly felt.

It was evident that further aspiration would be useless, and that free drainage should be secured at once, to relieve the embarrassed lungs and heart. Dr. Prescott kindly saw the patient with me and agreed about the operation.

Primary anæsthesia was used. There was very little shock. Within twelve minutes of starting the ether the bandage was on, and the patient perfectly conscious. A good-sized double rubber drainage-tube was put through an one-and-a-half-inch incision in the seventh space, axillary line. There was a large amount of thick pus.

There was a return of the severe pain in the right side, as after the second aspiration, and the cough became very troublesome.

Five days after this the note says: "Has been considerably relieved by the operation. Epigastric distress nearly gone; appetite a little better; face not as anxious; color improved. The cough has been very hard, and has not yielded to morphia (gr. $\frac{1}{8}$) or codeia (gr. $\frac{1}{4}$) every two hours (by mouth)."

So violent, in fact, was the cough that air was forced into the loose tissue about the wound, and soon there was a general emphysema from the zygoma over cheek, neck, shoulder, back and side to the buttocks. The rubber shield holding the drainage-tube was lifted from the chest wall with rolls of gauze. As soon as the wound surface had granulated well, the air ceased entering, and the emphysema gradually disappeared without having caused any real discomfort. The tubes were shortened occasionally, and drainage was very good. Irrigation was not practised.

After the operation the temperature scarcely ever rose to normal, running between 97° and 98° F. The pulse, however, for ten days remained pretty constantly at 120, morning and night; was rather soft, fairly regular, and not influenced by digitalis or strophanthus. The respirations also remained rapid as ever, being 50 or 60 all the time.

The appetite was poor, and there began to be considerable epigastric distress again about January 30th. Up to this time, although failure in strength had been steady, it was not as rapid as before the operation; and there had been a decided increase in comfort. The fœtal movements were strong.

The note on February 2d says: "Appetite failing. Expression anxious. Gradual emaciation. Sweating. Pain in left side, front and back, and in wound, increased by a troublesome cough, which is aggravated on lying down. Sputum abundant — thick, muco-purulent. Examination showed the apices fairly clear — the right base same as usual, the heart in nearly normal position. Drainage free. Considerable purulent discharge."

During the greater part of February the pulse and respiration remained almost unchanged. For more than eight weeks the pulse had averaged over 110 in the morning, and the respiration over 50. Patient's general condition varied from time to time. Profuse sweats were not infrequent, with great exhaustion; and she about gave up hope of recovering or even living to have a full-term child.

But toward the end of February and in March there was improvement. The pulse gradually came down, grew steadier and stronger; the respirations, by the middle of March, had dropped to 30; the appetite came back; the face had better color; the expression was brighter; and the cough and pain were much diminished. The discharge had decreased, till on March 12th the notes show an average of about two drachms in twenty-four hours, and the descent of the lung made it difficult to retain the drainage-tube. The sweating was considerable at times. Judging from the fœtal movements, the child was strong.

An examination of the sputum by Dr. Greene showed numerous tubercle bacilli.

The physical signs in the right lung remained as before — clearer above than below, where numerous sticky râles obscured everything. There was some retraction of the intercostal spaces still. On the left side there was a gradual increase of vesicular quality, and in neither apex any definite sign of consolidation.

The course of things was uneventful till March 26th

when after an easy labor she gave birth to a strong, good-sized child, presumably full-term.

The tube was removed April 11th.

On May 11th there was still a little discharge. At this time the right lung seemed clear, and the left sound to the fourth space axillary, lower in back. The patient was now up and doing light work, with only a little cough.

During the summer she was sent off into the country, and improved rapidly. The child was breast-fed from the beginning.

I have seen her again quite recently. Appetite, strength and flesh are good as ever. There is occasional pain independent of respiration, both in the left chest (through the præcardium to the back), and in the upper part of the right chest. There is occasional dry cough. The expansion is rather deficient on the left side, though still fair. Fremitus present, but relatively diminished. Vesicular respiration is heard to a point an inch below the wound, front and back, though fainter than above, and relatively less than on the right side. The voice sounds correspond. The percussion note is duller than on the right, but there is resonance below the wound, corresponding to the respiratory murmur. There is no trouble at the scar. Respirations are 18–20, full and free; pulse 82; the heart in the normal position. The child is living and well though rather delicate looking.

Comparing this case with the reports and statistics of others, there are a number of points worthy of notice. Opinions concerning the relations of pneumonia, pleuritic disease and pulmonary tuberculosis to pregnancy are much at variance; and consequently the matter of treatment in certain important points is also undetermined.

Pneumonia in pregnant women does not appear to be more or less frequent than in women of the same age and social state who are not pregnant. It is important, however, to know whether pregnancy has an appreciable effect on the acute disease. This would be difficult to determine unless the effects were very marked and constant, there being so great a variation in degree, according to the particular season, the treatment, and the constitution, habits, and previous history of the patient.

In the case reported, the pneumonia (if it were such) appears to have run a natural course, the temperature dropping by crisis on the eighth day. A number of observers, however, consider that the onset is liable to be more severe and the fever higher in pregnancy; and others that the farther advanced in pregnancy the greater is the extent of lung involved, and, therefore, dyspnœa, etc.

The effect of pneumonia on pregnancy should be more easily determined.

In our case the effect was *nil;* but it should be noted that the attack came on in the sixth month. While there is contradiction between the figures of the early and more recent observers, the general opinion now is that the later the disease in pregnancy, the greater the liability to disturbance or interruption of pregnancy. Thus, out of a series of 17 cases, 10 had pneumonia before the seventh month, and but three aborted; while of six which had pneumonia after this period and before term, four miscarried. (The other cases were taken ill at term.)

There have been numerous attempts to explain the cause of interruption of pregnancy in pneumonia, and the assigned causes are almost as numerous. Among these may be mentioned hyperpyrexia, hydræmia, uterine contractions stimulated by imperfectly oxygenated blood or severe coughing, and death of the child from various causes. Death of the child *in utero* is ascribed to hyperpyrexia, want of oxygen, hydræmia of mother, catarrhal pneumonia of child from inhalation due to asphyxia, insufficient supply of sodium chloride in maternal blood, and (in the light of recent investigations) acute infection by the pneumococcus through the placental circulation.

The prognosis for the child is poor, even when it is born alive, after being carried to term. Thus Wells reports eleven cases of his own where the pneumonia occurred in four during the first three months, and later in the other cases, with three miscarriages, and one induced labor. All the children were born alive; yet but one lived for any length of time after birth.

The prognosis for the mother appears from statistics to be decidedly worse when pregnancy has been interrupted, the danger increasing with the advance of pregnancy. Some tables give a mortality as high as 17 out of 19; one gives 71 out of 104; others lower. Cause and effect are liable to be confused here in drawing inferences from figures, as it is probable that the pneumonia itself was of a much severer type in most of the cases where pregnancy was interrupted.

The prompt fall of the temperature in the case just reported soon relieved me of considerable anxiety, but there was time enough given to suggest a number of questions which might demand an answer in a less favorable case:

(1) Does the distended abdomen of pregnancy diminish the air space in the thorax to any extent, so that emptying the uterus would relieve dyspnœa?

(2) With continued high temperature and increasing dyspnœa and cardiac weakness, would induced labor be advisable? or, if miscarriage is threatened, should every effort be made to stop it?

(3) In case the child were viable, but showed signs of failing strength, would induction of labor be justifiable whether the mother's condition were favorable or not?

It is evident from my case, that, in spite of the pneumococcus, moderately high fever, great dyspnœa and racking cough, pregnancy at five to six months may continue smoothly without any appreciable effect on the child.

Pleurisy complicating pneumonia is very frequent; and pleurisy with effusion not rare, even in an early stage; but empyema is rare.

Verneuil has said that the pregnant woman has a distinct tendency toward pus formation. If this is so, the case reported is one in point. As a considerable proportion of the fluid drawn at the first aspiration was pus, it is evident the effusion was purulent at an early date. It was noticeable that neither aspiration was followed by the relief which might have been expected from the withdrawal of so much fluid. It is probable, however, that the distress and danger would have rapidly increased had the effusion been allowed to accumulate further. The permanent drainage itself seemed rather to hold things in check than to give very definite relief.

As to the propriety of aspirating or draining whenever there are the usual indications independent of pregnancy, it seems to me there can be little question. Anæsthetics are given and operations performed so

frequently during pregnancy without deleterious effect, that little is to be apprehended. Shock and severe pain are probably the most to be feared. Particular attention would naturally be given to the usual precaution against emptying the pleural cavity too rapidly or too thoroughly. As to giving an anæsthetic there may be difference of opinion. Profound anæsthesia when there is any embarrassment to breathing or circulation is undoubtedly dangerous; and in a pregnant woman the subsequent nausea and retching might increase the danger of miscarriage; but the rapid primary anæsthesia, which is all that should be required for the drainage operation (unless resection of the ribs were done), has little danger; and that is overbalanced by saving the patient from the pain and fright of a cutting operation. Moreover, the operator can be much more deliberate and will run less danger of cutting intercostal vessels or wounding the diaphragm.

The persistence, for eight weeks, or more, of respirations over 50 and of pulse at 120 on the average is remarkable; but even more so is the fact that pregnancy should have progressed so evenly in spite of marked cyanosis, distressing dyspnœa, vomiting, and a cough so frequent and violent, together with progressive failure of strength, loss of flesh, sweating, etc.

When these became marked and the sputum was found to contain tubercle bacilli the outlook was grave. The question arose whether it might not be better, for mother and child, to induce labor, as there seemed a possibility of her failing so rapidly that both might die.

If it were established what influence pregnancy, abortion, miscarriage and labor have on the course of pulmonary tuberculosis, it would be easy to determine a line of treatment in such cases; but, strange to say, opinions are far from unanimous in this comparatively familiar field.

It is important to know, whether tuberculous patients become pregnant less often than others; whether pregnant women are more or less liable to tuberculosis; whether pregnancy hastens or retards the tubercular disease; whether the course is more precipitate after confinement, or induced, or premature labor.

Evidently these questions can best be settled by the experience of men with large private practice rather than by hospital statistics, where little is known of previous and subsequent history.

CANNABIS INDICA.

BY ROBERT T. EDES, M.D.

Extract of cannabis indica is one of those drugs which always possess a great fascination for the incipient experimental pharmacologist (very frequently a medical student); and yet there is perhaps even less to be said as to its mode of action than of its immensely more powerful congener, opium.

It is strange that with such strongly marked and highly characteristic subjective symptoms, recognized by every one who has experimented upon himself with it, that is, the immense apparent prolongation of space and time; and the double consciousness, so interesting in its possible relations to hypnotism, that this drug has awakened so little attention on the part of the modern school of experimental psychology.

It has, however, notwithstanding the interest attaching to it, never attained an important position as a hypnotic; probably for two reasons, the first and most important being that it is far from being trustworthy in this direction, and, secondly, that the notorious uncertainty of its preparations has thrown difficulties in the way of exact experiments or the comparison of results. It has, however, occasionally been found useful, especially if given with a corrigent like bromide to counteract its exciting effects.

An observation made by accident led me to inquire whether it could not be profitably employed for a purpose for which the physician is not often asked to prescribe, and for which, so far as I know, few if any drugs have been recommended.

It was found that a patient for whom this drug had been ordered for the relief of long-continued headache (which, by the way, it failed to accomplish) had ceased to suffer, after this prescription was made, from the bad dreams that had previously annoyed her. Acting upon this hint, it was given to one or two others who had made similar complaints, with similar results, that is, the character of the dreams changed and became agreeable.[1]

The idea which first comes into the physician's mind when he hears this complaint is likely to be that of the traditional mince-pie, or, in other words, he is very apt to attribute all bad dreams, as undoubtedly many of them ought to be, to a more or less serious indigestion or an uneasy conscience. But as it is not probable that all cases have so simple an explanation, and may not yield, any more than the insomnia which they accompany or replace, either to diet, laxatives, tonics or sincere repentance, the possibility of dealing effectually with the symptom may occasionally be welcome.

This may be a small matter; but when good restful sleep is likely to be an important or even the essential part of the cure, it is not entirely to be neglected. How often does it happen that when the patient is questioned whether he slept well, the answer comes, "Oh, I slept! but it didn't do me any good. I worked harder in my sleep than I do when I am awake."

I write this in the hope that others, as opportunity offers, may try whether this effect is a real and tolerably constant one, or whether my experience was one of coincidences only.

I may recall here the remark of Fitzhugh Ludlow, speaking, however, of much larger doses than are to be employed for this purpose, to the effect that when a second dose is taken before the effects of the first have passed off, the visions are invariably terrible.

The drug should not be given in so-called "full doses," that is, not sufficiently large to produce effects obvious to any one but the patient, and hardly even that, but just short of it. For example, if experiments have shown that ten drops of the preparation to be used gives rise, in the average person, to some excitement, rapid talking, laughter, double consciousness, etc., let the dose for the purpose we are considering be, say, six or seven. I have found that a very convenient plan of administration, admitting of varying the dosage much more easily than by the preparation of pills, which are exceedingly difficult to divide and to make up, is to prepare an alcoholic solution of the extract, which may then be dropped in the desired quantity upon a spoonful of granulated sugar. The dose is to be determined afresh for each fresh parcel of the drug used.

[1] It has acted in a similar way in one or two cases which occurred after the above was written.

Medical Progress.

REPORT ON DERMATOLOGY.

BY J. T. BOWEN, M.D., BOSTON.

CANCER OF THE SCROTUM IN CHIMNEY-SWEEPS AND OTHERS.[1]

BUTLIN undertakes an investigation of the statements (1) that chimney-sweep's cancer is rare outside of Great Britain; (2) that it is becoming less common even there; and (3) that it is, in comparison with other malignant growths, a mild one. The first proposition could only be determined by a comparison of the statistics of the London hospitals with those of the Continent and of the United States. The second proposition, that it is becoming less common, is not borne out by the statistics of the London hospitals. It was never a common disorder. The third proposition, that it is a comparatively mild disease, he assents to, regarding the prognosis of an uncomplicated cancer of the scrotum as favorable, and recurrences as less difficult to handle than is the case with most malignant affections. The disease begins by the appearance of a wart, which may remain unchanged for a long time, but finally begins to grow and to become degenerated in the centre. From the surface, where it often remains localized for a long time, the growth may extend inward and involve the testicles. Secondary affection of the inguinal glands is apt to be of late occurrence; other secondary affections are not common.

Butlin emphasizes two peculiarities of the disease, the affection of the lymph glands years after the successful removal of the primary affection, and the affection of the inguinal glands without a primary disease in the scrotum or neighboring parts. Several cases of the first sort are alluded to, and three of the second. In the second instance there is an epithelioma of the lymph glands, that presents all the characteristics of the secondary affection, but for which no primary source can be determined. Several theories in explanation of this anomaly are advanced by the author.

As to the frequency of cancer of the scrotum, Butlin shows that 39 cases have been treated in St. Bartholomew's Hospital during the last twenty years; there was a proportion of one to forty cases of malignant neoplasms. Middlesex Hospital records gave similar figures. Of the 39 cases from St. Bartholomew's, 29 were chimney-sweeps. It is believed that the skin of the sweep is so altered by his occupation that it is susceptible to the inroads of cancer, and that the skin of the scrotum is more predisposed than other parts. Of 36 deaths from cancer, which occurred in chimney-sweeps, one case presented a cancer of the lip, two of the face, 23 of the scrotum, penis and testicles. This preponderance of scrotal cancer is emphasized when one compares it with the one case of cancer of the lip that occurred, a part that is with men especially prone to cancer.

He next attempts to solve the question why the occupation should have such an influence. It cannot be the dirt, as scrotal cancer does not occur in those who follow other occupations, as miners, coal-shovellers, etc., and who are often entirely covered with dirt over the whole body. It is not possible that the soot contains the cancerous element, according to the author, nor that it is the *direct* cause of the cancerous growth. He believes that the soot must prepare the soil for the appearance of cancer by means of its chemical action. Other questions to consider, if this is so, are why chimney-sweeps of other countries are not affected with scrotal cancer. This he believes to be due to the neatness of the foreign sweeps. The Belgian and German sweeps are better protected by clothing from the soot than are the English. In Germany and Switzerland a daily bath is taken, while the English chimney-sweep washes away the soot only once a week at the most.

The question is next raised, How great is the tendency to cancer in persons with other occupations? Volkmann has written on "Tar, Paraffine and Soot Cancer," and Bell upon "Paraffine Cancer of the Scrotum." These forms are quite the same as that found in chimney-sweeps, and lead Butlin to the conclusion that it is possible to prepare the skin for the outbreak of cancer, by continuous action of certain substances upon it for a long series of years, and that these injurious substances, which we know best, are soot, tar and raw paraffine. These substances appear to exert a specific action on the tissue of the scrotum; and Butlin thinks that the susceptibility of this part depends more upon chemical and physiological peculiarities than on anatomical structure.

According to Esmarch, Langenbeck and others, the injurious agent in tobacco-smoke and tobacco-juice, is the same as that in soot; and in this way the cancers of the lip and tongue in tobacco-users are explained. He further believes that the particles of soot suspended in the air of large cities, may very easily cause cancer of internal organs, by gaining entrance into the body. He ascribes the increase in the number of cancerous affections, in part, to the daily contact of the soot with our mucous membranes.

As prophylactic, he recommends a dress for the English chimney-sweeps similar to that used in Holland, Belgium and Germany, and a daily warm bathing of the whole surface of the body.

[1] Butlin: British Medical Journal, June and July, 1892.

CONDITION OF THE BLOOD IN CERTAIN DERMATOSES.[2]

There have appeared, of late, several articles on the density of the blood and serum in different normal and pathological conditions; and Schlesinger endeavors to obtain some data as to the influence of pathological states of the *skin* on the blood and serum. His results are based on 1,200 examinations made on 200 subjects. The method of Hammerschlag was used to determine the specific gravity of the blood.

Pemphigus. — Eleven cases of pemphigus foliaceus, three of pemphigus pruriginosus and five of pemphigus vulgaris were examined. In all cases the specific gravity of the blood was much above the normal. The blood was examined both during and after an eruption, as well as during the intervals between attacks, but only slight oscillations were observed as a rule. Several times, however, very marked bullous eruptions were accompanied by a considerable increase in the specific gravity of the blood, that disappeared soon afterward. The experiments on the density of the serum showed that the increase could always be accounted for by the loss of the albuminoid constituents.

Burns. — Fifteen cases of subjects who died of burns, showed that the blood in all was very much thickened. This thickening, however, was only present during the first twenty-four hours. Sometimes in

[2] Schlesinger: Virchow's Archiv, 1892.

subjects who lived for three or four days after the burn, no thickening of the blood was observed after the first thirty-six hours. The increased specific gravity (1,065 to 1,073) was owing to the loss of serum, or at least to the loss of an albuminous fluid, provided there was no variation in the specific gravity of the serum.

Eczema. — The cases examined were generalized eczemas with very abundant secretion. Here he found only a slight increase in specific gravity, which rapidly disappeared. If the affection lasted a long time, there were found no important alterations in the blood.

In all the other dermatoses examined, lichen ruber, leprosy, psoriasis, erythema multiforme, etc., no change in the density of the blood could be detected, or there was only a change that could be accounted for by the impairment of nutrition. In lupus, the specific gravity was normal, except in cases where there had been free suppuration for a long time.

A number of examinations were made to determine the relation between the density of the serum and the liquids exuded at the surface of the skin. In vesicular and bullous eruptions, he found that the fluid contained in the bullæ was of a less specific gravity than that of the blood serum, although in certain conditions it may even exceed the latter in density. As a rule, the exudation in the dermatoses is more albuminous than that of other inflammatory processes. One hundred and thirty examinations of the contents of bullæ were made, in cases of pemphigus, burns, urticaria, erythema multiforme, erysipelas, herpes zoster, etc. He found that the contents of the bullæ in some were below the blood serum with respect to the proportion of albumen, while others, as erysipelas and vaccination vesicles, contained an equal proportion of albumen. In only one affection, herpes zoster, were the contents of the bullæ much denser than the blood serum. In two cases of pemphigus, it was found that the specific gravity of the contents of the bullæ was very high at the beginning of the process, but diminished rapidly with its extension. It was found that in exudative processes of the skin that persisted for a long time, there was no diminution in the albumen of the blood, or at most a very slight one. The specific gravity of the blood was never less than 1,027 in pemphigus and in chronic weeping eczemas.

Certain external medicaments have a marked influence on the density of the blood, raising it for several days, without especial effect on the general condition. Examinations were made on subjects who were receiving weekly injections of five centigrammes of sublimate. After each injection there was found to be a considerable increase in the specific gravity of the blood, which may be transient, lasting only some hours, or may be prolonged for several days. Two cases where the gray oil of Lang was being injected were examined, but no change in the density of the blood nor in the number of red globules was apparent. In cases undergoing the inunction cure, no important variations in the density of the blood nor in the number of red globules were observed. It was found that naphthol and chrysarobin have an action similar to that of sublimate. No especial change in the specific gravity was found in the case of twenty subjects who were being treated by pyrogallic acid. Tar on the contrary, even when used for a short time, was shown to produce quite marked variations in the specific gravity of the blood.

TREATMENT OF SYPHILIS BY BLOOD SERUM.[5]

Many pathogenic micro-organisms produce during the period of infection, soluble substances, which are capable of conferring immunity, as has been lately demonstrated. These materials circulate in the blood, and are probably eliminated by the kidneys when these organs are in proper order. Bouchaud, experimenting with the microbe of blue pus found that when he injected the urine of rabbits that had been previously inoculated with this microbe, into other rabbits, the latter were rendered proof against the action of the bacillus pyocyaneus.

It is by the action of these products that the immunity of the mother bearing a child infected with syphilis by the father, is to be explained, the placenta being the organ through which the products are carried. In this way, too, is to be explained the occasional immunity of the child of a syphilitic mother. Bonaduce also thinks it probable that in the case of a married pair, living in close relationship and contact for many years, one of whom is afflicted with leprosy while the other remains free — the reason for the latter's immunity may lie in the reception by the mother of the soluble products of the leprosy bacillus, through the utero-placental circulation.

Although the real bearer of the syphilitic poison has not been isolated, no doubt can exist in the present state of pathology, that syphilis is an infectious disease, and as such subject to the laws that hold good for others of its class. Therefore, we may assume that the micro-organism of syphilis produces, not only a syphilis poison, but also an *anti-syphilis* poison, that is to say, substances which have the power of conferring immunity from this disease. In this way the products of the microbe, that are formed in the fœtus, are the cause of the mother's immunity. In acquired syphilis in the adult it is these substances again which are formed from the microbes, and produce the acquired immunity. Thus we conclude that after a certain time, there are present in the blood and tissues of syphilitic subjects, the elements by which the organism receives its immunity from a second infection from syphilis. The quantity of the products necessary to obtain immunity in certain diseases, has been shown by experiment to be very small. Many difficulties are thrown in the way of obtaining these active products from the blood. In the first place, it is very hard to determine the point where these products are set free and enter into the circulation, and, in the second place, we find other poisonous substances in the serum of infected organisms, which favor the growth of the microbes, when injected into an animal affected with the same disease. As during the uterine life the soluble products of the micro-organisms have no outlet through the kidneys, the writer concludes that in all probability the substances that confer immunity must be present in the child immediately after birth as well as the poisons alluded to. To get rid of the latter heat is utilized. The writer, therefore, instituted the following experiment. Blood was taken from three children suffering from hereditary syphilis and left for a day in the ice-chest. In this way thirty-five cubic centimetres of serum were obtained, to which were added one hundred cubic centimetres of distilled water. This mixture was then warmed for ten minutes at 100° C., and filtered over the flame. Ten cubic centimetres of this mixture

[5] Salvatore Bonaduce: Monatsheft f. prakt. Derm., August 1, 1893.

were injected every other day into a patient who had a characteristic initial lesion and polyadenitis. The cure lasted twenty-four days, in which twelve injections were made, and during this time the ulcer and also the adenitis gradually disappeared without local treatment. Eight months later no syphilitic symptoms had appeared. The writer encourages those who have the opportunity, to institute similar experiments with the blood serum from the placentas of women who have borne children affected with hereditary syphilis.

Two eminent Italian specialists are already experimenting with blood serum in the treatment of syphilis. Tommasoli is using lamb's and calf's serum for injection, on the ground that the blood of these animals must contain a chemical substance which is hostile to syphilis, inasmuch as it is a disease peculiar to mankind alone. Pellezzari, on the contrary, thinks that the virulent agent of the disease must be attacked by the aid of the chemical products which it produces itself. With this motive, he injects the blood serum of syphilitics in the different stages of the disease. Fournier has also attempted injections of the blood serum of dogs and horses, according to the method of his colleague Richet, and Feulard has called attention to the efficacy of the dog's blood serum.

(To be continued.)

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL OBSERVATION.

JOHN C. MUNRO, M.D., SECRETARY.

REGULAR Meeting, April 3, 1893.

DR. GEORGE A. CRAIGIN read a paper entitled

A CASE OF PREGNANCY COMPLICATED WITH PNEUMONIA AND EMPYEMA.[1]

DR. KNIGHT: I have been very much interested in Dr. Craigin's account of his case, one of a kind of which I have had comparatively little experience; therefore his case and the statistics and facts which he presents in regard to pneumonia and pleurisy in connection with the puerperal state are very interesting to me. In regard to the other condition, the tubercular condition, I have had a good deal of experience in cases of it which have been complicated with pregnancy, and I have come to a pretty decided conclusion in regard to such cases without having made statistics which every man ought to do if he wishes his statements to be believed. As Dr. Craigin says, it is well-known that there is a great diversity of opinion in regard to the influence of the one on the other, pregnancy on tuberculosis and tuberculosis on pregnancy. Clinicians pretty generally from the time of Cullen down have come to the conclusion that pregnancy exerts a rather favorable influence upon tuberculosis and perhaps even an arrest, whereas the obstetricians claim exactly the opposite, that the influence of pregnancy is decidedly injurious and fatal. Well, now I have come to the conclusion that this diversity of opinion comes from the fact that the clinicians see the cases early and the obstetricians see them late. It is in my opinion true that in a pretty large proportion of cases of pregnancy the tubercular process is apparently favorably influenced. There is an arrest or a great improvement during the activity of the nutritive processes set in action by the condition of pregnancy, and it is also true in my experience that very soon after childbirth and as a consequence of childbirth apparently and an attempted restoration to the normal condition of things that patients are very apt to fail rapidly; but there is an occasional exception to this and those cases you may say only prove the rule. I do not at all believe in the dictum of some French clinical professor who said the tuberculous woman may have two children or three, but never more. I remember very well reports of cases where tuberculous women have given birth to five children and been well for some time after it.

In regard to the time of the disease in which pregnancy occurs, a good deal has been said, but the fact is that it rarely happens that a woman in advanced tuberculosis of the lung becomes pregnant. I should say that a pretty good proportion of cases of tuberculous women in the earlier stages who become pregnant are likely to do pretty well during pregnancy unless they have serious digestive disturbances and those cases do very badly. If there is a good deal of nausea and vomiting and general digestive derangement during pregnancy a tuberculous woman runs down rapidly, but otherwise I should say a pretty large proportion of cases improve and some undergo a temporary arrest.

DR. S. H. AYER: I have been very much interested in Dr. Craigin's paper because I have had a case very similar to his which I reported about a year ago. Pneumonia occurring during pregnancy is a very grave complication; the mortality is very high; abortion is very apt to occur; the more advanced the pregnancy the more liable is the patient to abort, the more unfavorable is the emptying of the uterus and the more fatal the issue. The symptoms of a pregnant woman afflicted with pneumonia are not materially different from those of an ordinary case with the exception that all the symptoms seem to be very much exaggerated. The fever is apt to be higher; the skin is very hot; there is marked disturbance of the respiration. This disturbance in the respiration is due to two causes: First, the causes which are influenced by the pneumonic process, such as the exudation, the pain experienced from the coexistent pleurisy, and the using up of a great amount of oxygen, brought about by the increased combustion, due to the fever. Second, when pregnancy complicates the case we have the abdominal space filled, more or less, by the enlarged uterus pressing up the bowels, stomach and spleen, and interfering materially with the contractions of the diaphragm. Then, too, we have to take into consideration the impoverishment of the blood, which is a very important factor in rendering the case a serious one.

The case which I reported a year ago was of a young woman twenty-five years old, who, in the fourth month of pregnancy, was taken with symptoms of pneumonia, miscarrying. She remained comfortable about thirty-six hours when she was seized with severe pain in the left side, dyspnœa and fever. The symptoms were not relieved by the physician in charge, and, she being at the time under the care of a homœopathic physician, I was called to the case early in the morning of the fourth day. Examination showed signs of pneumonia at the left base. Pain was relieved by the administration of morphine and the patient very soon became in a comfortable condition. She went along comfortably until the eighth day when the signs at the left base

[1] See page 270 of the Journal.

gave way to those of effusion. In about two weeks the patient was taken into St. Elizabeth's Hospital. Aspiration was tried, but the pus would not pass through the needle, and a permanent opening was accordingly made and tubes inserted. In about six weeks the patient made apparently a good recovery, and remained well for perhaps two months longer when she again began to ail. The symptoms were obscure and in no way referable to the chest. She entered the City Hospital and remained there one month. While in the hospital a great deal of cough developed with expectoration, and she left in a very much debilitated condition having lost perhaps thirty pounds during her illness. She was looked upon as a case of phthisis. The patient then went to the country, returning perhaps in six weeks from the time she left the hospital, and again came under my care. At that time an abscess had formed in the sixth left interspace, just outside the nipple and it was evident that an empyema existed. Resection of the seventh rib was performed and in a month's time the patient was nearly well, one might say, in excellent condition. She had gained perhaps twenty pounds of flesh and the cough had entirely ceased. The diarrhœa, which had continued without interruption for two or three months, also disappeared. The marked œdema of the ankles left her and she became quite herself again. However, the opening did not close and in about one month from the performance of the resection a further resection of the fifth and sixth ribs was performed. In perhaps a month's time the opening healed entirely and the patient left the hospital perfectly well.

The subsequent history of this patient is also interesting, and I should like to repeat it here. She remained in perfect health for about fifteen months. She then became pregnant and began to have rather bad symptoms. The appetite became poor and she was troubled with more or less nausea and vomiting. The diarrhœa returned, which was not easily checked. Rather a profound condition of anæmia set in, and her general condition became very poor. At this time she was not under my observation, but, coming to Boston last October, she then being in the seventh month of pregnancy, I saw her for the first time. There was nothing noticeable then regarding her mental condition, but the anæmia, and the œdema of the ankles were present. She was put on tonic treatment and the case was supposed to be progressing fairly well. The diarrhœa stopped, and we were looking forward to a favorable termination of the case. On the 16th of December, she then being about eight months' pregnant, she suddenly developed symptoms of insanity which were of a very mild type, so mild, in fact, that the husband thought little of it. On the morning of the 17th she seemed to have hallucinations. She thought that the people were trying to get into the house; that somebody would enter the room and carry her off, and she made such queer remarks to her husband regarding their leaving the house, that he thought it best to come for me. When we returned we found she had committed suicide by the use of a razor, severing the trachea and large vessels of the neck.

I think the most interesting point regarding Dr. Craigin's paper is the fact that the patient lived at all. I think it remarkable, that, with all she went through, she survived. It seems to me, speaking in the line of criticism, that a resection would have been perhaps better than aspiration in the beginning. I firmly believe that empyema, no matter when it may occur, is a great deal better treated by resection than by aspiration, or even by a permanent opening, and it occurred to me as Dr. Craigin was reading his paper, that, possibly a resection, done in the beginning, might have in some way changed the aspect of the case.

DR. CRAIGIN: I should like to ask whether Dr. Knight thinks that if abortion were induced early in pregnancy it might affect the tuberculosis favorably.

DR. KNIGHT: I have not had any experience. I should think that the nearer a woman came to not having children the better off she would be in the end.

THE PAN-AMERICAN MEDICAL CONGRESS.

THE first meeting of this Congress was held in Washington, September 5, 6, 7 and 8, 1893, the President, DR. WILLIAM PEPPER, of Philadelphia, in the chair.

The Congress was formally opened by the PRESIDENT OF THE UNITED STATES, who said:

"The part assigned me on this occasion admits of but few words. It, however, affords me the opportunity to say how pleased I am to be in any way related to an assemblage such as this, called together in furtherance of the highest and noblest purposes and desires. I hope I may also be permitted to add that the protection of the public health and the prevention of contagious diseases are objects properly brought under consideration at the capital of a nation which appreciates fully the serious importance of everything which aids in making intercourse between civilized countries, and commerce between them safe and easy. It is also fitting that those who devote themselves to saving human life and the alleviation of human suffering should consider the modes of reaching these beneficent ends at the seat of a government whose greatest regard is the welfare and happiness of the individual citizen. It only remains for me to declare this Pan-American Medical Congress open for the transaction of the business which has called it together."

The HON. J. W. ROSS, President of the District Board of Commissioners, delivered an address of welcome on behalf of the District of Columbia.

The President of the Congress, DR. WM. PEPPER, then made an informal address, describing the objects of the Congress, and the work to be done. In conclusion, he expressed a hope that in the future the American Medical Association might expand beyond the limits of the United States, and become welded with the Pan-American Congress.

Responses were made by DR. J. W. PHILLIPPO, of Jamaica, in behalf of the British West Indies; HON. J. B. MCCREARY, of Kentucky; DR. F. MONTIZAMBERTY, of Quebec, representing British North America; DR. J. J. ULLOA, of Costa Rica; DR. J. N. HIBBERD, President of the American Medical Association; DR. C. A. L. REED, Secretary-General of the Congress; and DR. S. S. ADAMS, Chairman of the Local Committee of Arrangements.

PROF. F. A. RISQUEZ, of Caracas, Venezuela, delivered an address on "The Flora of America in its Relations to Medicine."

SECOND DAY. — WEDNESDAY, SEPTEMBER 6TH.

The formal address in the morning session was delivered by PROF. RAPHAEL LAVISTA, of Mexico, on

"The Pathology, Symptoms and Treatment of Gangrene."

Resolutions were referred to the International Executive Committee —

(1) Requesting the Committee to appoint suitable international committees on the subjects of proper Govermental recognition of State preventive medicine, on uniformity in American pharmacology, and on medical education.

(2) Resolving that the Congress respectfully recommend to her Imperial Majesty's Secretary for India these recommendations: An imperial sanitary department attached to the Government of India, a provincial sanitary department attached to each of the provincial governments, and a local sanitary department.

(3) A resolution, that in the opinion of the Section of Hygiene, Climatology and Demography, the interests of the public health in every country should be intrusted to a department of the government especially charged with their administration, and that it shall be national, that it shall have parity of voice and influence in the national councils, that it shall have independent executive authority under the limitations common to other departments, and that it shall be intrusted to educated and experienced medical men.

In the afternoon, the delegates and their families were formally received by President Cleveland.

In the evening DR. WILLIAM PEPPER delivered

THE PRESIDENT'S ADDRESS,

from which we make the following extracts:

If anything could add to the dignity of this assemblage, which for the first time asserts formally the organic union of the physicians of all America, it is the fact that the Congress of the United States passed a joint resolution requesting the President to extend those invitations, in response to which we welcome the presence here of official delegates from all the Governments of the Western Hemisphere.

After a concise review of the history of the settlement of the American Continent, and the advance of medical science, he said:

For a long time it seemed even to friendly critics that the new races which strove for a foothold on American soil were unlikely to thrive as vigorously as in their accustomed habitats, and the impossibility of developing a genuine and lasting American type was freely asserted. To those who have considered this point with anxious care, the last two decades have brought results that put to rest all apprehension. It is a demonstrated fact that the European race in America, which already numbers over a hundred millions, will show no decline in vigor or in energy, in physical or in mental strength. It is not on account of mere bigness in material achievement that we point to the millions who fought in the great civil war; or to the hundred and seventy thousand miles of railroad in the United States, almost as much as in all the world besides. It is, even more, as evidences of large imagination, of courageous resolution and dauntless tenacity of purpose, and of enormous power of physical endurance that we value the enterprises which have subjugated this continent so swiftly and are hastening its commercial consolidation.

The entire medical world was agitated during the latter half of the seventeenth century by the struggle over the merits of cinchona bark, introduced into Europe in 1640 by Juan del Vego, and no more convincing tribute can be adduced as to the value of medical and sanitary science than the prominent place occupied by malarial diseases in the general and medical literature of the seventeenth and eighteenth centuries as contrasted with the feeling of impunity with which they are now regarded. Among the results which may be anticipated from this meeting is, I trust, the adoption of some well-considered plan for systematic conjoint study of our American remedies to greater uniformity in their preparation, and ultimately to a single pharmacopœia for the entire continent.

The introduction of nitrous oxide (1844) and of ether (1846) into medical practice, with which the names of Wells and of Morton are so honorably connected; the establishment of the operation of ovariotomy by McDowell, of Kentucky, upon a secure scientific basis — these and hundreds of other achievements are too familiar to need mention. Every one knows now how superfluous it is to say a word in defense of American literature, and certainly we who know how powerfully the opinions and practice of medical men in Europe and throughout the world are influenced by American writings may view our position with some complacency. Yet a survey of what America is actually contributing to medical literature shows clearly how far we are behind the nations which lead in medical thought.

On the other hand, in the more ephemeral forms of medical literature the figures are very different. From a careful count made of the volumes of medical journals and transactions filed in the library of the Army Medical Museum at Washington, it is clear that of these classes of medical literature there were, in 1890 and in 1891, published in America about twice as many volumes as in Germany or France, and fully three times as many as in Great Britain. We must not forget that in the hurry of our life of to-day many observations and investigations of great value are published in journals, instead of being reserved to become part of more serious and complete volumes. But the great excess of medical journals in America, as contrasted with the comparatively small number of new medical works, is entirely consistent with the admitted leadership of Germany, France, and Great Britian in medical science. The apparently extraordinary number of medical journals in America is due chiefly to a substantial reason, and one which influences equally the existence of very numerous medical schools and medical societies. The vast extent of territory and the relatively sparse population render it impossible to serve the country with as low an average of medical men, schools, societies, or journals as is possible in more densely-populated countries.

The rapid rise in the standard of scientific requirements, both of medical men and medical literature, and the increasing appreciation on all sides of the fact that the higher medical education is the true interest both of the profession and of the public is accomplishing the much-needed work of checking the ill-considered establishment of new medical enterprises. I should fail in courtesy and in candor alike were I not to acknowledge the great value of the example which has been so consistently set by Latin-America and by Canada in the maintenance of a high standard of qualifications for medical practitioners.

A broad field opens before us for the study, with the aid of collective investigation, of the distribution and course of phthisis and rheumatism and other important

diseases as influenced by race and locality. The endemic fevers, other than malarial and typhoid and yellow fever, which are said to prevail in various parts of North and South America, have long demanded systematic investigation to complete the study which the illustrious Drake began.

Our combined influence will be irresistible when used in advocacy of higher education; in carrying out large plans for the scientific study of our national life, as affected by social and climatic influences; in the adoption of remedies and remedial measures of demonstrated merit, and in the insistence upon a fuller recognition of the lofty function of preventive medicine. "Salus sanitasque reipublicæ, suprema lex." Let us acquire here a closer touch with each other, a deeper faith in our profession and its noble destiny, and a stronger determination to labor in brotherly co-operation for the loftiest ideals of service to science and the race.

(To be continued.)

Recent Literature.

Cholera: Its Protean Aspects and Its Management. By Dr. G. Archie Stockwell, F.L.S. In two volumes. Physicians Leisure Library. Detroit: George S. Davis. 1893.

Dr. Stockwell's views in regard to the pathology and treatment of cholera are not those most generally held at the present time. According to the views which he advocates, cholera is a neurosis. The sympathetic system is in either a paralytic or hyperæsthetic condition — extremes which meet. The pneumogastric, a cerebro-spinal nerve, is an antagonistic and controlling agent; its stimulation, and thereby the re-establishment of its cardio-inhibitory functions, is an important indication. In all attacks of cholera, regardless of the stage, the first indications are to stimulate the vaso-inhibitory apparatus and antagonize the sympathetic (especially in its cardiac and lobar plexuses) by sedation, by reflex, or by both. Irritants or epispastics over the branches of the vagus in the neck beneath, in front of and behind the ear, covering three inches of surface, preferably on the right side, should be freely applied. The effect is almost instantaneous.

The so-called cholera-bacillus of Koch, Dr. Stockwell regards only as an old friend under a new name — an everyday *spirillum*. He makes no distinction, except in severity, between cholera nostras and Asiatic cholera.

The second volume is largely made up of extracts and quotations from writers on cholera whose opinions commend themselves to Dr. Stockwell.

Should this book reach a second edition, more careful proof-reading would be desirable. A constant repetition of *prima viæ* strikes the reader as strangely as do some of the author's opinions.

Cholera: Its Causes, Symptoms, Pathology and Treatment. By Roberts Bartholow, M.D., LL.D. Philadelphia: Lea Brothers & Co. 1893.

This small octavo of 130 pages contains in a condensed form a well stated *résumé* of all the important and practical points in regard to cholera which the practitioner or student requires. There is a judicious historical introduction; and the author's personal experience in two epidemics has well fitted him to weigh the value of recent investigations and procedures.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, SEPTEMBER 14, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

Subscription Terms: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 Washington Street, Boston, Mass.

AUTO-INTOXICATIONS IN MENTAL DISEASES.

There has been of late considerable speculation respecting auto-intoxications in the psychoses. Such speculations have been stimulated by Professor Bouchard's researches on the pathogenic rôle of the auto-intoxications in general.

Dr. Kellogg, of Flushing, N. Y., in the New York *Medical Journal* "considers it probable that a considerable proportion of mental disorders have a toxic origin." In alcoholic, saturnine, and some other forms of poisoning the dependence of the mental disturbance upon the poison is recognized, and he contends that certain auto-intoxications with ptomaines are probable causes of insanity. The toxic albumoses have been found in the urine in cases of insanity. Why, he asks, may not the autogenous poisons enter the circulation and act directly upon the central nervous centres with sufficient toxic force to produce mental disturbance?

Dr. Rohé, of Catonsville, Md., in inquiring into the relations existing between pelvic disease and psychical disturbances in women,[1] points out the frequency with which bodily conditions influence mental states, and shows that "a torpid condition of the intestines, Bright's disease, putrefactive processes in the intestinal canal, etc., might give rise to melancholia and other disorders of the mental functions."

Dr. H. M. Hurd in an article "On Post Febrile Insanity" in the *Journal of Insanity* studies the delirium of fevers and the psychoses developing from specific infections, and Dr. G. T. Tuttle, of Somerville, Mass., reports the results of the examination of the urine in two hundred consecutive cases in the McLean Asylum.[2] Albumen and casts were found in 55 cases, albumen alone in 64 cases. He collects statistics from various pathological reports of hospitals and finds that in about 40 per cent. of autopsies in the insane, kidney disease was found, and concludes that chronic nephritis [uræ-

[1] Journal of the American Medical Association, September 24, 1892.
[2] Journal of Insanity, April, 1892.

mic poisoning] is sometimes the cause of mental aberration which may be called insanity.

The subject was discussed at the Fourth Congress of Mental Medicine held at Rochelle in August, 1893. Regis, of Bordeaux, and Chevalier-Lavaure, referees, stated that they had been working on the line of the autogenous poisons, and had made many chemical and clinical researches to elucidate the relation of auto-intoxications to mental diseases. The toxicity of the urine was found to be diminished in maniacal states and augmented in melancholia. The urine of maniacal patients when injected in animals produces excitation and convulsions; that of melancholic patients, restlessness, dejection and stupor. There is often in insanity as in eclampsia an inverse relation between the toxicity of the urine and that of the blood, the latter being hypotoxic when the urine is hypertoxic, and *vice versa*.

Under the head of "Facts of Clinical Order," these authors consider the psychoses of acute infectious diseases, of visceral diseases, and of diathetic diseases:

(1) In respect to the psychoses of infectious diseases (typhoid fever, eruptive fevers, influenza, erysipelas, cholera, puerperal fever) the sum of researches thus far made goes to show: First, that from a pathogenic point of view, these mental disorders are the result either of direct action of microbes or of their indirect and mediate action by the toxines which they secrete; second, that from a clinical point of view, they may present two aspects. In the febrile stage, the psychosis is an acute delirium, resembling the alcoholic; in the post-febrile stage, it is of an asthenic character, a state of mental obnubilation and confusion (Verwirrtheit). The referees think that a third form of infectious psychosis must be admitted, a form intermediate between those above mentioned, with the symptomatology of paralytic dementia, and which they call pseudo-general paralysis, or infectious general paralysis; and they ask in this connection, if most cases of typical paralytic dementia may not be the consequence more or less remote of an infectious disease? However this may be, the characteristic symptom of infectious psychosis, in all its forms, seems to be intellectual disorder, mental confusion, without doubt the result of the impregnation of the temporary inhibition of the cerebral cells by toxic agents. Generally the psychosis thus produced is susceptible of cure.

(2) The visceral psychoses are also believed to be in great measure the consequence of auto-intoxication. Nevertheless, experimental researches have not been pushed far in this direction, and in what concerns particularly the psychoses resulting from digestive disturbances, we yet know very little, having only certain imperfect data as to the concomitant alterations of the gastric chemism and the toxicity of the intestinal contents. We have more satisfactory data regarding hepatic and nephritic insanities, and it is clearly established to-day by the researches of French authors that these psychoses are at their highest mark the result of an autochthonous poisoning of the organism, of an auto-intoxication. As for the clinical character of these visceral psychoses, it may be affirmed that in cases where the intoxication is acute, the mental disease manifests itself habitually under the form of an acute toxic delirium like alcoholic delirium (this is the case in uræmic poisoning); when the intoxication is slow and chronic the state is one resembling melancholia, or, more rarely, paralytic dementia.

(3) The diathetic psychoses resemble acute toxic delirium, and in the interval of attacks they frequently manifest themselves under the form of general paralysis or paroxysmal mania more or less periodical, and almost always with melancholic character. The referees have also noted that these paroxysms of madness appear to correspond to variations in the composition of the liquids of the organism (hypoazoturia, hypophosphaturia, oxaluria, etc.), notably to discharges of uric acid, frequent precursors of the end of the crisis, and also to modifications in the urinary toxicity which is found to be inferior to the normal.

Under the head of "Facts of Therapeutical Order," the referees state that the antiseptic treatment, general or local, often gives most excellent results.

It is true that in the treatment of the psychoses of acute infectious diseases a tonic and supporting regimen is necessary to combat the state of exhaustion and inanition, the agents of infection being unknown; but in the visceral psychoses, linked to diseases of the stomach, liver, kidneys, etc., very good results have been obtained from the employment of purgatives, lavage of the stomach, and antiseptics.

At the same meeting, Ballet, of Paris, gave some interesting facts concerning the toxicity of the urine of insane persons, which were strikingly confirmatory of data previously furnished by other authorities. At the same time, he cautions against exaggerating the importance of these researches; the study of urinary toxicity in the insane has without doubt its utility, but it would be impracticable to found nosological distinctions on this alone. In one instance, cited by him, the toxicity of the urine was extreme, the patient was an hysterical girl who manifested no delirium or mental aberration, and had no apparent disorder except hysteria.

VARIATIONS IN INTENSITY AND RHYTHM OF THE CARDIAC PULSATIONS.

ALTHOUGH in general variations in the intensity of the heart sounds depend upon the strength of the systole, there are a number of other circumstances which may cause variations. Potain[1] finds that among the most obvious of these are increase in thickness of the cardiac walls, or those of the chest, the interposition in front of that organ of gas or liquid or the presence of a portion of the lung, possibly in an anomalous anatomical position. Special sounds may be accentuated in certain diseases, as the aortic sound in Bright's and the pulmonic where there is an obstacle in the pulmonary circulation.

[1] L'Union Médicale, January 5, 1893.

In most cardiac affections there is great acceleration of the rate, though sometimes retardation is observed. The latter, however, does not usually depend on a lesion of the orifices, and is often more apparent than real, some beats being too feeble to be felt in the pulse or even to be heard by attentive auscultation. This condition has great prognostic value as it indicates a change for the worse in the condition of the patient. The fœtal rhythm, recently insisted upon by Huchard, depends upon an accelerated cardiac action accompanied by a modification in the duration of the pauses, so that the intervals between the two sounds seem of equal length.

Irregularity of action may depend on simple digestive disturbances, especially intestinal, but is usually a symptom of valvular lesion and it is well worth knowing that it is observed especially in patients who have been under treatment by digitalis.

At times three, or even four, sounds, may be heard with each cardiac revolution, at others, only one, in the latter case it is usually the first sound which is lost or rather becomes so faint that it cannot be heard. Reduplication may be normal and is then dependent on the respiratory movements, the reduplication of the second sound being produced at the end of inspiration and at the commencement of expiration, while the reverse is true for that of the first. The reduplication of the second sound is due to the premature closure of the aortic flaps from the increased tension of the blood in that vessel, and results from purely mechanical causes. The physiological reduplication of the first sound is much rarer. The pathological reduplication of the second sound may be the only sign of mitral stenosis, which otherwise gives no evidence, either general or local, of its presence. It is independent of respiration and accompanies all cardiac pulsations. Being due to changed conditions of pressure in the two arteries, at the beginning of the disease it is due to premature closure of the aortic valves, at the end to premature closure of the pulmonic; midway in the course of the affection there is no reduplication, but only an accentuation of the second sound. The reduplication of the second sound due to premature aortic closure is also seen in general pericardial adhesions, and the differential diagnosis can only be made by looking for other signs of this condition. The two conditions may, of course, be co-existent.

MEDICAL NOTES.

Typhus Fever. — Typhus fever has broken out again in San Luis Potosi, Mexico, and a large number of deaths occur daily. The other cities are so far free from the disease.

Cholera. — The last week has seen a general improvement in the cholera epidemic throughout Europe. At present the condition is most serious at Soolina and the Danubian ports. Kalafat, Styrna and Scutari are all infected — over three hundred cases having been reported in the last week with a high mortality. The disease has appeared in Bucharest and in the prison at Constantinople. The mortality throughout Turkey is about thirty per cent. Another death is reported from Vienna. In Roumania there have been fewer cases the last week than previously. In Italy and Southern France there has been a rapid decline in the epidemic. Nantes is the only place in France at present seriously affected. Thirty-five cases have occurred in Antwerp, since July 28th, with eighteen deaths. They have been scattered, and chiefly among sailors. The sanitary condition of the city is reported as very poor, no radical improvement having been made since last year. In England a death from cholera occurred the 11th inst. at Retford, County Notts.

The South Carolina Disaster. — The sanitary condition of the whole Carolina coast, resulting from the hurricane of two weeks ago has become most serious. Physicians in the vicinity of Beaufort and St. Helena are reporting to the Marine-Hospital Service a very large number of diarrhœal and malarial cases. It is almost impossible, they say, to care for the sick, and to provide the necessary disinfectants. The President has detailed a medical officer to take charge of the sanitary measures at Beaufort, and has placed a revenue cutter at his disposal.

Negro Surgery. — An article is going the rounds of the English newspapers describing "a wound in the heart of a negro successfully treated at the Negro Hospital, Provident, U. S. A., by a negro surgeon, assisted by negro nurses." American medicine is fairly well specialized already, but this suggests a new line for division of practice.

Pasteur Institute Report. — According to the report of the Pasteur Institute of Paris, for 1892, there were 1,793 persons inoculated who had been bitten by rabid animals. Seven patients died, a mortality of 0.39 per cent., which should be really considered lower, as three of the seven were already showing symptoms of hydrophobia when first treated. Bites about the head and face have the worst prognosis, a mortality of 1.48 per cent.

The Cure of Hay Fever. — The treatment of hay fever is subject to criticism such as comes to no other disease, namely, from societies of the sufferers themselves. It is interesting to note that the patients are not as enthusiastic over, and do not report such good results as a society of their medical advisers would be likely to do. The United States Hay Fever Association have recently held their annual meeting in Bethlehem, N. H., and listened to papers largely on the disease from the patients' point of view. It appears to be the general opinion that the only certain relief is to be found in the White Mountains, and that most therapeutic measures are of little or no use, and some of them harmful. The treatment by local cauterization in the nose is often of benefit, but the benefit is generally only partial and temporary.

NEW ENGLAND.

FOREIGN MEMBERS OF THE PAN-AMERICAN CONGRESS. — The foreign members of the Pan-American Medical Congress were the guests of the physicians of Boston this week. Tuesday morning they visited the Massachusetts General Hospital. At noon they were given a luncheon by the Faculty of the Harvard Medical School, in the school building, about one hundred and fifty guests being present. In the afternoon they were shown over Harvard College. Wednesday morning they spent at the Boston City Hospital where they were given a luncheon by the Trustees. In the afternoon they were shown the harbor and quarantine arrangements as the guests of the Board of Health. Several of the members were accompanied by their wives and daughters, who were given a carriage ride about the city while the physicians were visiting the hospitals.

FRUIT AND CHICKEN NUISANCES. — The Board of Health of Boston has had much trouble lately with fruit venders and Chinamen who keep fruit to ripen, or slaughter fowl in their houses in violation of the city ordinances. This week several fruiterers have been convicted and fined for this offence, and the Chinese who keep fowl and kill them to order were also convicted, but no sentences imposed, as the Chinamen desired to confer with the Board upon some place where they may kill their fowl according to their national custom. This action of the court is expected to strengthen the control of the Health Board in abating such nuisances.

THE BOSTON WATER-SUPPLY. — The quarterly analysis of the Boston water-supply has been received by the Water Board from Dr. Wood. The waters are reported as generally containing less chlorine than formerly. The water improves on passing through Basin No. 3 and the Sudbury aqueduct, but does not improve in passing through the other basins and conduits. The waters of Stony Brook, Lake Cochituate and Basin No. 4 are about the same as in July, 1892, except that they have less chlorine. Basin No. 3 water has less chlorine than ever before. The waters of Basin No. 2, Farm Pond and Beaver Dam Brook are about the same as in July, 1892. The waters of Basin No. 2 and of the service has a little more albuminoid ammonia than for two years. The water of Chestnut Hill Reservoir is about the same as last October, and that of Cold Spring Brook about the same as in April 1892.

SCARLET FEVER AT PROVIDENCE. — An unusually large number of cases of scarlet fever have occurred in Providence, R. I., the last three weeks, and several cases have been reported from Pawtucket.

THE EPPING CAMP-GROUND. — There seems to be good reason to suspect the sanitary condition of the Epping camp-ground near Amesbury, Mass. Last year several cases of typhoid, five of which were fatal, occurred among the campers soon after the season. This year a similar outbreak of the disease has begun, and one death has already occurred.

Miscellany.

THE DENTAL CONGRESS.

THE International Dental Congress which was opened in Chicago on August 14th, deserves more than passing notice on account of the character and excellence of the work done, and the size of the attendance. In addition to an attendance of 1,000 from the United States, 116 foreign members were registered, the latter not including Americans practising abroad. At the banquet held towards the close of the meetings twenty-seven different nations were represented in the responses.

The scientific work of the congress was done in eight sections; and the character of the work was extremely satisfactory. It is interesting to note that the more scientific of the papers attracted the largest audiences. The historical addresses are of interest to the physician as well as the dentist, in tracing the birth of dentistry from medicine and its rapid growth to its present position. The inaugural address of the President, Dr. L. D. Shepard, traces this development clearly and concisely from the opening of the first dental college, in Baltimore, in 1839, to the present day. The first dental journal was established in the same year, and in 1840 the first dental society. In 1841 the first State dental law was enacted, in Alabama, and, curiously enough, remained the only one in this country for twenty-five years, when New York followed in 1868. The English law was enacted in 1878, and other countries a little later.

Surgical anæsthesia, by which medicine has gained even more than dentistry, was given to the world by the younger profession. The greater honor is perhaps due to Dr. Wells, provided it is true that, in 1844, two years previous to Dr. Morton's discovery, Dr. Wells did intelligently and publicly, with full appreciation of the phenomena, perform painless operations in dentistry and surgery by the administration of nitrous oxid gas, given for that specific purpose. Dr. Morton probably knew of Dr. Wells's work previous to 1846. It is a curious fact that after the introduction of ether in 1846 and of chloroform in 1847 the use of nitrous oxid was not revived until 1862.

Among other discoveries of importance in dentistry may be mentioned the cohesiveness of gold. This was followed by improved instruments, the mallet, the rubber dam and the engine, and the preservation of teeth more and more superseded the older artificial plates. Dentistry has profited by the advances of recent medicine, and antisepsis and the study of bacteriology. To what a degree of progress the science of dentistry has arrived may be inferred from the list of papers presented to this congress.

THE OPERATIVE TREATMENT OF PERITONEAL TUBERCULOSIS.

THE value of operation in the treatment of peritoneal tuberculosis in children has been much disputed and even yet is by no means generally allowed. The numerous cases benefited by laparotomy have been challenged as to correctness of diagnosis and the indications which predict a favorable result not thoroughly understood. The report by Conitzer[1] of seven cases

[1] Deutsche Med. Wochenschrift, No. 29, 1893.

operated upon for tuberculosis of the peritoneum throws some light upon the points in dispute.

The children varied from two and a quarter to nine years old. Four cases were of the exudative form in which there was a diffuse superficial inflammation of the peritoneum with numerous very small tubercles upon the parietal and visceral membrane and free serous fluid in the abdominal cavity. In all of these cases there was but slight disturbance of the general health. Some anorexia and heaviness and disinclination to move about were the chief symptoms. Some of the patients, too, had gray colored stools though not otherwise icteric.

The other three cases were of the dry adhesive form in which there was more general disturbance and often pain, and a considerable degree of matting together of the intestines and omentum.

The operation consisted only of an incision into the abdomen, and, after allowing the free fluid to escape, closing up of the wound. No washing or manipulation of the cavity was done in any case.

The four exudative cases all made a lasting recovery. In each, microscopic examination of the tissue showed characteristic tubercular structure, giant cells and in two cases the presence of bacilli. The three other cases all showed caseous tubercular nodules with bacilli. One case recovered from the operation and after four and a half months was still relieved from much of the pain and discomfort though not at all well. The other two cases died with little or no relief.

After discussing these cases in detail he draws the following conclusions:

(1) Peritoneal tuberculosis is spontaneously curable: the dry form in very few, the exudative form in a very large number of cases.

(2) All forms may be cured or at least relieved by laparotomy, even when other treatment, including puncture, has failed.

(3) The results of the operation depend upon (*a*) the form of the disease, the best results being obtained in the cases of effusion, (*b*) the duration of the illness, (*c*) eventual complications.

(4) The operation is contraindicated in advanced cases or those with marked tuberculosis of other organs.

(5) No explanation can be given of the reason or manner of the curative effect.

LINGUAL TRACTION IN CASES OF SUSPENDED RESPIRATION.

The Académie de Médecine has recently had under discussion the reports of many cases of asphyxia treated according to a method first suggested in July, 1892, by M. J. V. Laborde. At that time he reported several cases of apparent death from drowning, successfully treated by rhythmic tractions upon the tongue, drawing it well out of the mouth and allowing it to fall back again about fifteen times a minute. The result was so satisfactory that the method was tried in cases of asphyxia of the new-born, of gas poisoning and strangulation.

Since then a more general trial has been made by other physicians, and laboratory experiments to determine the physiological action of the treatment have been carried on. The results as reported to the Society[1] are full of interest. The procedure is as follows: The patient is laid upon the back with the head low or very slightly raised on an even plane from the hips. The mouth is opened and the tongue firmly seized between the thumb and forefinger, pretty well back. It is then drawn forcibly forward out of the mouth till some tension is put upon the root. It is not sufficient to draw forward the tip alone. The tongue is then allowed to fall well back into the mouth. This alternate traction and replacing of the tongue is done regularly about fifteen times a minute until the patient begins to breathe. In the cases reported as successful, the time occupied in traction varied from three minutes to two hours, according to the severity and nature of the case. When the lungs hold fluids, as water or mucus, a brief time should be spent in emptying them before beginning traction. The first sign of returning life is to be looked for in an epigastric wave caused by a slight diaphragmatic contraction. Following this a faint sigh gives evidence of a respiratory attempt. Diaphragmatic respiration returns first — then the thoracic. In severe and prolonged cases some observers found advantage in the coincident application of thoracic pressure. Many of the cases reported responded successfully to the Laborde treatment, after failure of other methods. This was especially so in cases of natal asphyxia in which the tongue traction was tried after the usual obstetrical methods had proved insufficient.

One case was particularly interesting. A girl, thirteen, was seen three minutes after apparent death from tuberculous meningitis. The body was still warm and slightly cyanotic, the pupils dilated, no breathing existed, nor could any cardiac action be made out by auscultation. Rapid traction of the tongue was tried, forty times a minute. After three minutes there was less cyanosis. Soon slight nasal dilatation was noticed; then the epigastric wave of slight diaphragmatic contraction, followed by thoracic motion. A faint murmur was heard over the heart and a small radial pulse made out. At the end of ten minutes the respiration was re-established (both abdominal and thoracic) the heart's action could be felt and both sounds made out.

This condition lasted for five minutes and then in spite of continued traction the vital processes disappeared in the reverse order of their re-appearance and the patient died permanently.

The physiological mechanism is through a reflex stimulation of the excito-motor forces of respiration. The sensory nerves of the tongue, especially at the base, are stimulated by the traction. The superior laryngeal is the most important, the glosso-pharyngeal and lingual playing a secondary rôle.

In dogs a section of the laryngeal nerves made the subsequent traction of the tongue during asphyxia of very slight effect, though previously the same dogs had responded well. The ninth nerve is second in importance. The motor nerve essential to the reflex, is the phrenic, as after section of this nerve in dogs continued and energetic traction of the tongue called forth not the slightest response.

The method promises so good results that in the official directions of the second regiment of *pontonniers*, for the treatment of persons drowned, the government has placed lingual traction as the first means to be employed.

[1] Bulletin de l'Académie de Médecine, No. 28, 1893.

METEOROLOGICAL RECORD,

For the week ending September 2, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r.*		Rainfall in Inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..27	30.08	70	75	68	90	88	89	E.	S.W.	15	12	R.	O.	0.07
M..28	30.01	78	85	70	86	87	86	S.W.	S.	14	9	O.	O.	
T..29	29.72	76	81	71	91	62	77	S.	S.W.	33	32	R.	C.	0.24
W..30	30.04	68	76	60	60	55	58	W.	N.W.	16	7	C.	C.	
T..31	30.14	68	78	57	65	52	58	W.	N.W.	7	5	C.	C.	
F.. 1	30.10	60	64	57	73	74	74	N.E.	S.E.	9	9	C.	R.	
S.. 2	29.90	64	71	56	86	73	79	S.E.	N.W.	14	7	O.	O.	0.37
☞	29.99		71	62			74							0.68

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 2, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.	
New York . .	1,891,306	759	351	21.32	13.91	14.30	1.17	2.86	
Chicago . . .	1,438,000	521	299	32.30	5.89	18.62	4.94	4.75	
Philadelphia .	1,115,562	469	190	19.74	10.71	11.97	2.31	3.36	
Brooklyn . .	978,394	451	251	29.04	8.80	13.98	1.54	2.64	
St. Louis . . .	560,000	—	—	—	—	—	—	—	
Boston . . .	487,397	245	107	27.88	7.79	19.68	1.64	3.69	
Baltimore . .	500,000	—	—	—	—	—	—	—	
Washington .	308,431	114	42	26.70	6.23	13.35	6.23	1.78	
Cincinnati . .	305,000	102	40	15.68	10.78	7.84	1.96	4.90	
Cleveland . .	290,000	120	65	35.69	4.98	25.73	1.66	1.66	
Pittsburg . .	263,709	94	49	39.22	10.60	16.02	3.42	6.36	
Milwaukee . .	250,000	116	77	37.84	6.88	30.15	1.72	4.30	
Nashville . .	87,754	41	13	21.94	9.76	10.32	10.32	—	
Charleston . .	65,165	29	11	13.80	3.45	6.90	—	—	
Portland . . .	40,000	22	9	27.24	9.08	18.16	9.08	—	
Worcester . .	96,217	46	24	41.23	2.17	34.72	2.17	—	
Fall River . .	87,411	60	36	41.66	1.66	39.84	1.66	—	
Lowell . . .	87,191	33	24	42.42	9.09	39.39	—	—	
Cambridge . .	77,100	22	14	31.78	9.08	31.78	—	—	
Lynn	62,656	30	15	26.66	10.00	20.00	—	—	
Springfield . .	48,684	16	5	31.25	13.00	25.00	6.25	—	
Lawrence . .	48,355	—	—	—	—	—	—	—	
New Bedford .	45,886	24	15	50.00	—	37.44	12.48	—	
Holyoke . . .	41,278	—	—	—	—	—	—	—	
Salem	32,233	11	7	27.27	—	27.27	—	—	
Brockton . . .	32,140	7	4	28.56	28.56	28.56	—	—	
Haverhill . .	31,396	11	4	45.45	27.27	45.45	—	—	
Chelsea . . .	30,264	9	2	—	22.22	—	—	—	
Malden . . .	29,394	5	3	40.00	—	40.00	—	—	
Newton . . .	27,556	—	—	—	—	—	—	—	
Fitchburg . .	27,146	8	4	25.00	—	25.00	—	—	
Taunton . . .	26,972	13	5	23.07	15.38	23.07	—	—	
Gloucester . .	26,688	5	4	—	—	—	—	—	
Waltham . . .	22,058	9	5	22.22	22.22	22.22	—	—	
Quincy . . .	19,642	3	0	33.33	66.66	—	33.33	—	
Pittsfield . .	18,802	5	4	60.00	40.00	60.00	—	—	
Everett . . .	16,585	6	4	33.33	—	16.66	16.66	—	
Northampton .	16,331	4	1	50.00	—	25.00	25.00	—	
Newburyport .	14,073	5	4	60.00	—	60.00	—	—	
Amesbury . .	10,920	2	2	100.0	—	100.0	—	—	

Deaths reported 3,459: under five years of age 1,717; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fevers), 952, diarrhœal diseases 653, consumption 329, acute lung diseases 204, diphtheria and croup 107, typhoid fever 91, whooping-cough 40, scarlet fever 23, cerebro-spinal meningitis 22, malarial fever 9, measles 5.

From whooping-cough Chicago 12, New York 9, Philadelphia 6, Pittsburgh 4, Washington and Cleveland 2 each, Brooklyn, Boston, Cincinnati, Milwaukee and Charleston 1 each. From scarlet fever Boston 4, New York, Philadelphia and Pittsburgh 3 each, Chicago and Cleveland 2 each, Milwaukee, Nashville, Lowell, Lynn, Woburn and Medford 1 each. From cerebro-spinal meningitis Chicago 6, Cleveland 4, New York and Washington 3 each, Brooklyn and Worcester 2 each, Lynn and Somerville 1 each. From malarial fever New York 5, Nashville 2, Philadelphia and Charleston 1 each. From measles New York 2, Brooklyn, Boston and Washington 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,327,846, for the week ending August 26th, the death-rate was 21.6. Deaths reported 4,283; acute diseases of the respiratory organs (London) 162, diarrhœa 707, whooping-cough 74, diphtheria 66, measles 62, scarlet fever 55, fever 55, small-pox (London 3, West Ham, Leicester, Oldham and Blackburn 1 each) 7.

The death-rates ranged from 13.4 in Croydon to 33.2 in Blackburn; Birmingham 21.8, Bradford 26.4, Derby 17.1, Halifax 18.7, Hull 27.0, Leeds 24.8, Leicester 20.3, Liverpool 23.8, London 20.8, Manchester 24.4, Newcastle-on-Tyne 22.5, Nottingham 18.0, Sheffield 28.0.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT. U. S. ARMY, FROM SEPTEMBER 2, 1893, TO SEPTEMBER 8, 1893.

A board of officers to consist of COLONEL JOSEPH C. BAILY, assistant surgeon-general; MAJOR CALVIN DEWITT, surgeon, and MAJOR HENRY M. CRONKHITE, surgeon, is appointed to meet at the call of the president thereof, at San Antonio, Texas, for the examination of such officers as may be ordered before it, with a view of determining their fitness for promotion.

CAPTAIN HENRY S. KILBOURNE, assistant surgeon, will report in person to COLONEL JOSEPH C. BAILY, assistant surgeon-general, president of the examining board, appointed to meet at San Antonio, Texas, for examination for promotion.

CAPTAIN MARCUS E. TAYLOR, assistant surgeon, having been found by an Army Retiring Board, incapacitated for active service, is granted leave of absence until further orders, on account of disability.

Leave of absence for four months, to take effect on or about October 25, 1893, is granted FIRST-LIEUT. ALLEN M. SMITH, assistant surgeon, U. S. A.

CAPTAIN JULIAN M. CABELL, assistant surgeon, is relieved from duty at Fort D. A. Russell, Wyoming, and ordered to Washington Barracks, D. C., for duty with the company of instruction of the hospital corps.

RECENT DEATHS.

CHARLES W. PARSONS, M.D., Professor of Physiology in Brown University, died at Providence, R. I., September 2d, aged seventy years. He was the recipient of the Fisk Fund Prizes for 1848 and 1854. He was a member of the class of 1840, Harvard College.

AUSTIN K. GOULD, M.D., died at Worcester, September 8th, aged sixty-seven years. During the War of the Rebellion he served as surgeon in charge of a division hospital at Baton Rouge and at Wilderness Run. He was a prisoner for several months at Andersonville.

W. M. GRAILY HEWITT, M.D., Consulting Obstetric Physician to University College Hospital and Emeritus Professor of Obstetric Medicine in University College, died in London, August 27th, aged sixty-five years. He contributed many papers to obstetrical and gynecological literature. He was lately President of the Obstetrical Society of London and an honorary member of the American Gynecological Society.

BOOKS AND PAMPHLETS RECEIVED.

Pneumonia Among the Insane. By Eliot Gorton, M.D. Reprint. 1893.

Suturing the Tendo Achillis in the Correction of Deformities of the Feet. By H. Augustus Wilson, M.D. Reprint. 1893.

Therapeutical Superstition. By Geo. T. Welch, M.D., Ex-President of the New Jersey State Medical Society. Reprint. 1893.

A Practical System of Studying the German Language for Physicians and Medical Students for Self-instruction. By Albert Pick, M.D. Part II.

Sterilization of Milk at 75° C. (Pasteurization) and its Efficiency in Destroying Pathogenic Organisms. By Rowland Godfrey Freeman, M.D. Reprint. 1893.

The Throat and Nose and their Diseases. Illustrated. By Lennox Browne, F.R.C.S.E., Senior Surgeon to the London Throat and Ear Hospital, etc. Fourth edition. Philadelphia: Lea Brothers & Co. 1893.

Outlines of Practical Hygiene adapted to American Conditions. By C. Gilman Currier, M.D., Visiting Physician to the New York City Hospitals; Fellow of the New York Academy of Medicine; Member of the New York Pathological Society; Member of the American Medical Association, etc. New York: E. B. Treat. 1893.

Lectures.

MEDICAL EDUCATION IN THE UNITED STATES.[1]

BY J. COLLINS WARREN, M.D.,
Professor of Surgery in Harvard University, President of the Section.

GENTLEMEN: — The work of this Section is of a character which does not usually form a prominent part in the proceedings of medical gatherings.

In almost any department of education, pedagogy or the science of teaching is a recognized specialty.

The rapid progress which has been made in medical education in this country within the last few years has brought about such profound changes in methods of instruction, and the strides which medical science is making all over the civilized globe are bringing into view so many new fields of work, that the teachers of to-day have a far more complex and difficult task than was presented to their predecessors. The art of teaching medicine has not been taught, in this country at least; the time has arrived to take up the subject.

In introducing such a subject as this, it seems appropriate to take a brief retrospective glance at the history of medical education in this country.

There lies before me as I write, a quaint little volume entitled, "A Discourse upon the Institution of Medical Schools in America," published in 1765. It bears the following inscription:

"To Doctor John Warren, Physician in Boston, This Copy is presented by his respectful and affectionate Friend, John Morgan, Philad'a, Feb. 27, 1783." This book may be safely regarded as the first contribution to the subject which we are to discuss today and the two dates are memorable; the former indicating the foundation of the medical department of the University of Pennsylvania, and the latter the birth of the medical department of Harvard University.

Dr. Morgan justly remarks that "medicine is a science as important in its object as it is difficult in the acquisition. It is very extensive in its researches and presupposes the knowledge of many other sciences. The cultivation of it requires no small abilities, and demands of those who engage in the arduous pursuit an enlarged and benevolent mind."

It is interesting to note that one whom we might justly look upon as the father of medical education in this country and who "had spent five years in Europe under the most celebrated master in every branch of medicine," should have taken so optimistic a view of the knowledge of medicine at that time as to say: "The industry of many centuries has already been employed to bring Physic to that degree of perfection at which it is now arrived." Fortunately he adds: "It will still require a long time to remove the obscurities which yet veil many parts of it."

Three years after this book was written, Pennsylvania held her first medical commencement and the provost justly remarked: "This may be considered the birthday of medical honors in America."

The men who started this movement had received much encouragement from across the ocean and the remark of one of their teachers, Dr. John Fothergill of London, is of special interest to those concerned in the work of this congress. Writing to James Pemberton in 1762 he recommends Drs. Shippen and Morgan as men well qualified for the work of teachers, "both of whom," he says, "will not only be useful to the province in their employment but if suitably countenanced by the legislature will be able to erect a school of physic among you that may draw students from various parts of America and the West Indies."

During the colonial period of our history it was the custom for young men who entered upon the study of medicine to become regularly apprenticed to some practitioner for a term of three or four years during which time the preceptor was entitled to the students' services in preparing and dispensing medicine and serving as an assistant in minor surgical operations. As a return for this, the physician was obliged to give the student detailed and thorough instruction in all the branches of medicine. Many of the leading men frequently had several students in their office, constituting a small class, who were drilled as regularly in their studies as they would be in college. In some instances the term of apprenticeship was extended even to six or seven years.[2]

When the medical school sprang into existence it was at first intended merely to supplement the apprentice system, and as means of communication of one part of the country with another were exceedingly limited it was found desirable to concentrate school work into as small a part of the year as possible. Hence the origin of the short term of four months which has clung so persistently to the American system.

I will not undertake to weary you with a detailed account of the history of the development of our system of education. Suffice it to say that the close of the century found schools established not only in Pennsylvania and Massachusetts but in New York, Maryland and Vermont. There were, however, in 1810 only five medical schools in existence with an aggregate number of medical students of about 650, of whom 100 received the degree either of bachelor or doctor of medicine. The bachelor's degree was given to those who had attended one full course of college instruction. It was hoped that such students after a short period of practice would eventually return to take the higher degree, but as this expectation was not fulfilled the degree of bachelor of medicine was soon wisely abolished.

A noticeable feature of the education of that early period in our medical history were the requirements for a high standard of general education. Those students who did not possess a college degree were expected to pass an examination in Latin, mathematics and "Natural and Experimental Philosophy."

To obtain the degree of doctor of medicine it was necessary that the applicant should have been a bachelor of medicine for at least three years, should have attained the age of twenty-four years and should write and defend a thesis publicly in the college.[3]

When we consider how imperfect was the knowledge of chemistry, physiology and even anatomy, and many other branches of medical science, and how little of what we now consider the foundation of medical education there was to teach — such a course cannot be regarded as a very complete and exacting one.

"Under these influences the first thirty years sufficed to cause the bachelor's degree to be abandoned by all the schools, the number of professors in each

[1] An Address delivered before the Section on Pedagogy of the Pan-American Medical Congress.

[2] N. S. Davis: Med. Ed. and Med. Institutions in the United States of America, 1877.

[3] William Pepper: Higher Medical Education, 1877.

school to be double, and the length of the annual college term to be shortened one-third." (Davis.)

Such was the standard of education with which the present century opened. New schools continued to be created, not infrequently in connection with some university, as in 1810 at Yale University, in 1817 in Lexington, Ky., in 1820 at Brunswick, Me., in 1825 at Charlottesville, Virginia, until in 1840 twenty-six new medical colleges had been added to the list, the whole number of students in the country amounting to 2,500, the population in that year being 17,069,453.

A glance at the report of a committee to the Medical Society of the State of New York in 1833, gives a good idea of the amount of work done by the schools at that period.

In the twenty schools mentioned in this report the number of courses of lectures required was two, with one exception — that of the University of Virginia, where three courses were required; and to the credit of this university be it said, the length of each course was ten months, whereas, the almost invariable custom of the other schools was to give a course of four months' duration only. The time of study purported, however, to be in all cases three years, "including the time devoted to lectures," as is stated in most of the reports. This straw indicates that at that time the chief dependence, or nearly so, was placed upon the extra-mural instruction which was given to the student. At Yale University there was this additional requirement, namely, that the student was required to study four years "if he had not graduated," which phrase, I presume, means if he had not already taken the academic degree. This seems to be the first intimation that a longer term than the standard then set was necessary for a complete equipment for the practice of medicine.

The Medical Institution of the State of Georgia (incorporated in 1828) gave at first the bachelor's degree with one year of study, but immediately abandoned it for the usual curriculum.

In the University of Pennsylvania, to which we look for the standard in these early, as well as later days, two full courses were required, but as in many other schools one course only was demanded from those who had attended a course at some other reputable school. In addition, a course of clinical instruction in one of the Philadelphia hospitals was required.

The course was then three years in length, but as each course of lectures lasted only four months, it was expected that during the remaining portion of the first two years the student should receive private instruction.

As the period of the school term was so short, it is interesting to note at what time of the year the various courses of lectures began.

This, it will be seen, varied greatly according to the geographical position of the institution. At Dartmouth and the University of Vermont the term began in August. In Bowdoin College, Maine, however, it began in the middle of July, continuing until the middle of May, that is, the term time in the far north was in the summer or spring.

At Yale and Harvard and in Philadelphia and New York the term opened at the end of October or the beginning of November, as did also the schools in North Carolina and Kentucky. The University of Virginia, with its long course of ten months, began September 10th.[4]

Although the term time was exceedingly short in some schools a large amount of work was crowded into the daily routine of the students. Five or six systematic lectures a day, with attendance on clinics and dissections when possible, was considered nothing more than a fair amount of work for the medical student to digest properly.

This system of teaching remained practically unaltered in 1851, if we may judge from a report to the Committee on Medical Education of the American Medical Association.[4] In regard to the private instruction which was supposed to continue during the remaining eight months of the year, the report states that a very large proportion of students simply read medicine under the direction of their preceptors. Anything like careful instruction upon the part of the teachers did not exist. The student neither while attending lectures nor while in his preceptor's office was encouraged in anything like faithful and rigid study. To remedy the defect, private schools for teaching medicine were founded by enterprising physicians and surgeons and these quiz classes which were then inaugurated, became a prominent feature of the national system of teaching. Many a distinguished professor has first won his spurs at these private schools, and many valuable experiments in medical education were carried on by these men. As the college term has lengthened, the necessity for these accessory courses has diminished, and in many cities the extra-mural instruction, whether by private school or by teacher, has passed into history. No one will, I presume, regret the departure of the year of private teaching, "by some respectable practitioner," whose certificate, purchased by a handsome fee, came eventually to have so little meaning. When this custom was first inaugurated it was the sole method of inspection, and during the long period of apprenticeship the student received a large amount of instruction of the most valuable sort. When the medical school came into existence the attempt was made to combine the two systems. The practitioner, relieved from the responsibilities of giving a complete course of study to the student, gradually relaxed his efforts as a teacher until this part of his daily work came to have only a nominal value.

According to Davis, it consisted in 1877 in little more than the registry of the student's name in the doctor's office, permission to read the books of his library or not, as he chose, and the giving of a certificate of time of study for the student to take to the medical college where he expected to graduate.

At the beginning of this century the successful practitioner gave a prominent place in his household to the medical student. I have often heard my father and many other practitioners of his day tell stories of the school life of those times. The office in the old homestead where I began the practice of medicine, then a luxurious library, was in those times a plain room with a sanded floor, occupied during the day by a small band of medical students who all boarded in the same house. The old room was the scene of many amusing stories of schoolboy life, and also of thrilling tales of escape, from the indignant pursuer, by the hero of some graveyard scrape which was rendered necessary by the peculiar laws of that period. This phase of student life has long since passed away and the equally agreeable and far more profitable

[4] W. Hooker, M.D., 1851.

experience of hospital life has taken its place. Would that I could add that such hospital experience was now the privilege of every medical student in the land.

As we approach the middle of the century, we find the nation growing rapidly in population and prosperity, and a corresponding increase in the numbers and activity of the medical profession. From 1830 to 1845 the number of medical schools in the United States had more than doubled.

At a meeting of the Medical Society of the State of New York in 1839, when the subject of medical education was brought forward, it was proposed to hold a national medical convention the following year in Philadelphia, consisting of representatives from the different schools and State societies. No response was made to the action of this society, but in 1844 Dr. N. S. Davis, then a delegate from Broome County, New York, offered a resolution that a national convention be called in 1846, and the American Medical Association thus sprang into existence, the fundamental idea, which brought about the formation of the Association, being the improvement of our system of medical education.

It was high time that some such movement should take place, as the rapid increase of the number of medical schools brought with it a constant increase in the laxity of methods of teaching.

The equipment of a new school was sometimes pathetic in its meagerness — a manikin and a few lecture rooms constituting the entire "plant" of the infant institution. It would not do to question the dean too curiously about the clinical facilities which the school enjoyed; and as for laboratory work there were few teachers sufficiently advanced in their ideas to think of criticising the absence of such instruction. There was, indeed, no time for it. Every available space in the tabular view was filled with lecture hours. Professors were asked to come from neighboring towns to assist in teaching, and often gave two lectures in the same day. This cramming process, which seems so peculiarly American in its hustling activity, is perpetuated to the present day in a limited number of schools, chiefly those situated far from medical centres. As Oliver Wendell Holmes has said, life at that time was cheap; medical visits in the country were worth only twenty-five cents apiece, and the ambitious student could not afford to make an expensive outlay for his future work.

The American Medical Association therefore justly put on record its opinion, "that the abuses which exist in the modes of medical education pursued in this country demand the serious consideration of the profession," and at each meeting it continued to sound a note of warning on this all-important subject.

One of the principal reforms which it proposed to bring about was the lengthening of the term of each year from four to six months, and you will doubtless be somewhat surprised to hear that at the second meeting of the Association, which was held in Boston, a paper was presented from the faculty of Harvard University opposing this proposition.

Tempora mutantur et nos mutamur in illis.

If Harvard was unwilling to lead in the matter of reform at that time, it is not surprising that the other schools should not have been persuaded to change their customs. To the Chicago Medical College — which was founded in 1859 — must be given the credit of having been the first to attempt to lengthen the college course and to establish the system of teaching upon the so-called graded plan.[5] The school was in fact organized for this express purpose.

Little change was, however, effected by the Association in the methods of teaching at that time, although the discussions which were constantly held were destined eventually to bring forth good fruit. During the following decade little was done in the way of reform.

Graduating from the academic department of Harvard in 1863, I had an opportunity to study personally the methods in vogue at that time and am the more competent to express an opinion as I passed one year of my course of study in Philadelphia. The old system of medical education was then in all its glory and presented a striking contrast to one who had been subjected for four years to the strict discipline of a well-conducted university.

The course of lectures in Philadelphia began about the first of November, and the day was occupied in a bewildering succession of lectures, on all of which the student felt called upon to attend, as he had been obliged to "take out tickets" for the full course. The teachers were able, conscientious, and in many cases brilliant men, and many a lesson then learned has been of value in after life. Clinical teaching was, however, largely crowded aside by the superabundance of systematic lectures. The course came to an end on the first of March, and the class — which was an enormous one — was allowed to scatter to the four quarters of the country. Many of my classmates returned the following autumn, and after attendance on a second course of lectures and having also handed in the certificate of study from the "respectable practitioner" were able to graduate in the following March; that is, after having been connected with the school less than eighteen months. This may appear to the younger members of this Section an absurdly short curriculum, but there was a considerable number of enterprising young men who did not propose to occupy so long a time in obtaining their education.

You will remember what has already been said about the period of the year occupied by the school term. At that time there were not only schools which had their college "year" in the winter, but there were spring "years" and summer "years" as well.

Several of my friends proposed accordingly, after leaving Philadelphia in March to take a spring "year" at another school, in accordance with a custom which many at that time followed. Such a student was therefore able on July 1st to show to the examining body, tickets for two full courses of lectures and a letter testifying to private instruction. It was notorious that many students at [illegible] were able to obtain a degree after nine months only of medical study. The custom of short courses of study at different periods of the year unfortunately still prevails. This zodiacal paradox has not yet been fully eliminated from the medical calendar. The condition of teaching at Harvard was practically the same as at Philadelphia.

It is not surprising that the best class of students were dissatisfied with the opportunities, and that the number of those who found it necessary to go to Europe to complete their education was constantly increasing. Two and even three years of study was not considered too long a time to occupy in this manner.

[5] N. S. Davis: Contributions to the History of Med. Ed., etc., 1877.

It is true that spring terms of a supplementary nature were organized by most schools, and those students who chose to remain could receive instruction throughout the year. The majority of students, however, disappeared, many of them employing their time in other occupations to earn sufficient money to pay for a second course of lectures. The class of individuals who studied medicine at that time seemed far inferior to the medical student of to-day in culture and refinement. President Eliot says of the medical students of that period: "In this university, until the reformation of the school in 1870–71, the medical students were noticeably inferior in bearing, manners and discipline to the students of the other departments; they are now (1888) indistinguishable from other students."

The date which I have just mentioned marks the era of a great change in the history of medical education. The rising generation of teachers were not content with the antiquated methods of a previous century; they had learned of a new order of things in the centres of medical learning in Europe. As the old generation of teachers went out and a new one came in, the modern ways of teaching grew into a substantial system which had come to stay. Harvard adopted the graded course of three years' study, but she did also far more than that — and in this respect she stands in advance of almost every other school in the country — she lengthened her course to nine months, so that her two terms correspond with those of the other departments of the university and represent a full year's work.

I will not undertake to record the history of the reform in medical education since that time; it is familiar to most of you. The example which has been set to the rest of the country by the University of Pennsylvania and by the College of Physicians and Surgeons of New York is too well known for me to repeat them here.

While criticising, as I have done, the work of a previous generation, I ought to remind you that our forefathers accomplished what they did only by individual efforts. There were no governments, and as a rule no liberal benefactors to back them in their undertakings. Their schools had to be conducted on business principles, with a keen eye to the practical success of their venture. During the past twenty years, it is true, a number of State universities have been established. In the University of Michigan, and possibly in one or two other State universities, the medical professorships like those of other departments, are sustained by the income from the general endowment, independent of fees derived from medical students; but, as a rule, the success of the schools has depended upon the patronage which it has received. It may be justly said, therefore, that the whole system of medical education in this country is the spontaneous outgrowth of the work of the medical profession, and that it is due to their public spirit and disinterestedness that so important a department in the educational development of a great nation has been brought to its present state of excellence.

The good work has, however, but just begun. The reform of medical education is still in its infancy. If we are to believe all the glowing announcements which we read in the annual catalogues of the various schools, we might be lulled into a sense of calm security for the future; but, unfortunately, the actual practice of many, I might say a majority, of the schools does not come up to the ideals which are here set forth.

The essential points in the new scheme of education have been well stated by our President, Dr. Pepper:[6]

(1) The establishment of a preparatory examination.

(2) The lengthening of the period of study to at least three full years.

(3) The careful grading of courses.

(4) The introduction of ample clinical and laboratory instruction.

(5) The establishment of fixed salaries for the teachers.

In a general way we may obtain some notion of the improvement which has been made by a study of the report of the Illinois State Board of Health for 1891. According to this report there are now 148 medical schools of all kinds in the United States and Canada. The number of those requiring certain educational qualifications for matriculation is 129.

The number of schools requiring attendance on three or more courses of lectures was, in 1882, twenty-two. In 1891 the number was eighty-five.

There has been also a gradual increase in the duration of the lecture terms from an average of 23.5 weeks in 1882–83 to 26.3 weeks in 1890–91. In 1882–83 there were eight colleges that had but sixteen weeks; the number of colleges having terms of six months or more is now 111. The number of colleges which have graduated students at the end of the second course of lectures the present year is less than 10 per cent. of the whole number of schools in the country.

There are now in the United States thirty-two examining and licensing bodies that do not give instruction. Although the work of these licensing boards is far from uniform, a great deal has been accomplished by them. There are at the present time fifteen States with Practice Acts that require an examination of all persons desiring to practice medicine in the respective commonwealths. These States include nearly 50 per cent. of the entire population. In many States the whole complexion of the medical practice has been changed by the clarifying influences of these bodies. The reports on medical education by the Illinois board, I do not hesitate to say, have exerted a more powerful influence on the movement in education than any other publication which our medical literature has produced.

The effects of these Medical Practice Acts which establish a minimum of time spent at medical lectures and provide an examination for those who wish to become practitioners, are shown in the statistics which have just been given. At the present time State examinations are required in Minnesota, North Dakota, Montana, Washington, North Carolina, Alabama, Florida, Virginia, New Jersey, New York, Nebraska, Maryland and Utah.[7]

Millard, who has had experience in framing the act of Minnesota, believes that it would be an improvement upon the Medical Practice Acts at present in existence, to separate the two functions of the board, the licensing power and the educational supervision.

[6] Introductory Address, Philadelphia, 1877.

[7] Millard: The Necessity and Best Methods of Regulating the Practice of Medicine. Journal Amer. Med. Ass'n., July 30, 1892.

He thinks that the best interests of the public will be observed by assigning the duties of the State licensing power to the various State Boards of Health. The regulation of all forms of education should, on the other hand, be vested in a central power consisting of a single board, to be known as a State Bureau of Education, with power to regulate all educational institutions granting degrees, together with the power of granting charters and revoking the same; particularly should this apply to all institutions wishing to afford the community any of the various forms of higher or special education.

Having thus sketched the progress of medical education up to the present time, let us now glance at some features of the present system in which it is desirable that further improvement should be made.

The importance of a preliminary training for the study of medicine is a problem which has occupied the attention of our most prominent teachers. That the medical student should have received a fair amount of education goes without saying. The importance of a proper preliminary education is thus forcibly stated by that most experienced of German teachers, Professor Billroth. He says in reply to the objection to a preliminary study of the natural sciences as a basis of a medical education:

"The educated of all nations should not fail to encourage to their utmost, knowledge and study — in all countries and stations of life they should not fail to maintain the standard which they have set up, both for themselves and others; they should not fail to support the government in all efforts directed towards this end.

"The physician, the lawyer, the school teacher and the clergyman form the nucleus of culture in the community; they are, especially in the country or small towns, the representatives of the educated element of society. The people seek their advice in time of need, and they are their sole source of knowledge in many things.

"To neglect the education of such persons, to lower their mental and scientific standard, to bring them up so that they know no better education than the tradesman, the tailor and the cobbler, would be, in my opinion, the suppression of the educational development of a nation and is a policy both corruptible and immoral in principle, as it would inevitably ruin a nation and bring it prematurely to that point of decadence where it would become the prey of others."

The importance of these views is fully appreciated in Germany, where the professional schools are integral parts of the university, and entrance to the professional schools depends upon the previous completion of the course in philosophy, a course which corresponds to that of our academic degree.

In Dr. Holmes' suggestive article[8] on this subject it is shown that while the increase in the total number of medical students has been very great during the last decade, the increase in the number of "college men" who have entered the profession has been very slight, and in some of the more prominent schools the percentage has even slightly diminished. The author says: "It cannot then be doubted that relatively a smaller number of medical students have a bachelor's degree than in 1880, though the education of the average medical student is superior to the average medical student ten years ago." Although the proportion of medical students to students of law and divinity is greater in the United States, the relative proportion has diminished in the last ten years, whereas in Germany in the same period, a period during which medicine has become more of a science and the domain of surgery has increased under antiseptic methods, the proportion of medical students to the students of other professions has greatly increased. The reason for this variation in the proportion of students in the two countries is explained by the imperfection of our system of education. Educators have not had proper control and medicine has not been placed upon that dignified scientific basis which it enjoys in Germany.

Dr. Holmes complains that the medical department is neglected by every university in the United States. "It is farmed out or left to shift for itself."

Harvard has recently made an attempt to overcome the difficulty by a modification of the academic course. As Welch points out in an article on this subject:[9] If a young man choose the medical profession he should devote at least four years to medical studies, including the preliminary sciences. If he supplements this year with a year in a hospital and a year or two in study abroad, and all this work has been preceded by a college academic course, he would not be able to enter upon the practice of his profession much before the age of thirty.

Dr. H. P. Bowditch,[10] dean of the Medical Faculty of Harvard, has strongly advocated a change which would overcome this difficulty. The average age of students who enter the Harvard academic department, as President Eliot has shown, has been gradually rising during the whole of this century until it has reached nearly nineteen years. The student who enters the medical school therefore finds himself just beginning the preparation of the real work of his life at an age when many of his contemporaries are already engaged in the productive work of their professions. In Germany the best class of students begin their professional studies at a little earlier age than that at which our young men enter Harvard College. As the course of study leading to the degree of doctor of medicine lasts five years, it follows that the German physician is ready to begin practice before he is 23½ years old.

The average age of matriculants at Oxford is 19 years, and it is perfectly possible for an Oxford student desiring to study medicine to begin his purely professional studies before the end of his second year of college life. The dean writes me upon this subject as follows:

"There are many students in our school who have had one or two years of college life either as special or regular students, and these have entered the medical school because they have felt the necessity of getting started in their life work. These men would have been glad to take the A.B. degree if it could have been procured in a shorter time, but they consider it too dearly purchased when it involves so much delay in beginning their professional life."

It seemed, therefore, reasonable to the Medical Faculty of Harvard to make the following proposition, namely, that the academic council should consider the expediency of granting the degree of A.B. to all undergraduates who should subsequently take the longest course of study offered at the professional school after three years' attendance in the academic department — the professional degree and that of A.B. to

[8] The Forthcoming Report of the Bureau of Education on Professional Education in the United States, Jour. Amer. Med. Ass'n., January 14, 1893.

[9] Some of the Advantages of the Union of Medical School and University. 1888.

[10] Remarks made at a meeting of the Academic Council, 1887.

be given simultaneously at the end of the professional course. One of the medical studies at least can be obtained in the usual college curriculum, and general chemistry is frequently "anticipated" by students who enter the medical school. It is hoped, indeed, that this course will soon become one of the "preliminary studies" to medicine. It would be a short step to place one or two more of the scientific medical studies on the list of academic electives, and a whole year could be thus anticipated. The relations of professional schools to the university are not appreciated in the same light that they are in Germany, and the proposition of the medical faculty after much discussion was finally declined. The advantages of a more intimate relation between the medical school and the university are clearly set forth by Welch in the article referred to. The duplication of laboratories is thus avoided, and men of different branches of science are brought more intimately together. The important departments of botany, zoölogy, and comparative anatomy cannot fail to have an elevating influence upon the work done in a medical school. How much more rapidly might not original investigation progress when different branches of science work in a common cause. It is here that the great strength of German science and progress takes its origin.

A movement in the same direction is the establishment in our colleges and scientific schools of courses of tuition, intended specially for the benefit of those who intend ultimately to study medicine. Such a course has been planned by Professor Shaler in the Scientific School of Harvard, and a similar course is offered by the Institute of Technology.

Professor Shaler's course preparatory to medicine consists of two years. In the first year we find physics, zoölogy, botany, general chemistry, rhetoric and elementary French or German, and freehand drawing among the studies required.

In the second year there is botany, zoölogy, comparative anatomy, geology, comparative osteology, physics, qualitative analysis and themes.

It is certainly to be hoped that the medical teachers of the United States will not remain content with the very elementary examinations which are now demanded for those students who have not received a college education.

The advantage of a previous college training is shown in some statistics given by Billings [11] of examinations conducted by the examining boards of the army and navy. Of those candidates who had a college degree 34 per cent. were successful, and of those who had no such degree 28.9 per cent. succeeded. It is interesting in this connection to note that taking the medical schools of Harvard, Yale, the College of Physicians and Bellevue Hospital of New York, the University of Pennsylvania, and the University of Virginia together, 46.1 per cent. succeeded, while for all the rest of the schools in a body, 22.3 per cent. succeeded.

One of the most prominent features of the new education is the character and amount of laboratory work which is now required by our medical school. The new building of the Harvard Medical School, erected twelve years ago, showed the importance which its faculty attached to this means of teaching the student. Already the large addition of the Sears' laboratory has more than doubled the facilities of this department of the school. The University of Pennsylvania has felt the necessity of increasing the facilities of laboratory work and has received a munificent endowment for its department of hygiene. The literature of this part of our educational system is already becoming voluminous. The recent reports of Vaughan and Holmes in behalf of the work done at the University of Michigan and of the College of Physicians and Surgeons of Chicago, respectively, show the interest which is taken in this subject in some of the western schools.

General chemistry forms so large a part of the first year's work in the Harvard Medical School that it is proposed to make room for other valuable work by making this study one of the requirements of admission. This course is already anticipated by most of the college graduates. The course on embryology and histology is at present a required one, and lasts throughout the year. Students are obliged to keep books in which drawings are made of the specimens studied, and these books are examined by the teacher. Those who do not possess microscopes are provided with them by the school, and the equipment of this department enables it to handle classes of 150 students. Professor Minot, who conducts this course, urges the addition of a course on biology to the work of the first year, as it would not only enable the student to pursue many of his studies more intelligently, but would add greatly to the value of all original work done by the student or physician.

The new four years' course has been so arranged that the technique of bacteriology comes in the first year. This is a time when the student has more time for laboratory work, and it paves the way for special work in the study of these organisms in connection with pathology, which is placed in the second year. I shall leave a more detailed statement to Professor Ernst, who will have something to say upon this subject later. Bacteriology needs no special plea to-day. It cannot even be regarded as a purely scientific study. No practitioner of medicine or surgery who emerges from one of our schools to-day should be considered properly equipped for his work unless he has been trained in such a laboratory. No physician can expect to unravel the secrets of disease without a practical knowledge of the demonstration of certain forms of bacteria, and there is certainly no better school for aseptic surgery than the bacteriological laboratory.

The study of pathology at the Harvard Medical School [12] is conducted by Professor Councilman, not only by lectures, but by demonstrations, recitations and exercises in pathological histology. The latter course, which has hitherto been optional, is now obligatory. The relation of bacteria to disease is taught by the study of certain types of disease, as tuberculosis, suppuration, pneumonia, etc.

Demonstrations are given twice a week of material obtained from the hospitals and private practitioners. This is a laboratory exercise. Individual members of the class are called upon to study the specimens. They then carry them around to the other members of the class, and demonstrate and explain to them the lesions. Each student in this way has the specimen demonstrated to him. In the course on pathological histology the student is required to make drawings of the sections studied.

An opportunity is given to a certain number of men, who have gone through with their course in

[11] Ideals of Medical Education, 1891.

[12] Bulletin of the Harvard Medical School Association, No. 4.

pathology to act as demonstrators the following year and to assist in teaching. Places are assigned in the pathological laboratory to a certain number of students who have done well in their studies, and opportunity is given them for special study or original investigation.

A type of laboratory course, which I think is peculiar to Harvard, is that on the application of bandages and surgical apparatus. It is a purely laboratory course, is given to students at the beginning of their second year and is confined to a detailed study and drill in the practical part of such work. Bandaging is taught upon the living subject and upon wooden models. The feature of this course which is perhaps most valuable is the preparation and application of all the forms of stiff bandages. In this way every member of the class learns thoroughly the elementary part of this work before he begins to practise upon patients in the hospital, and no student leaves the school without becoming an adept in the application of the stiff bandage.

Another subject which is receiving more and more attention yearly is that of clinical instruction. The weakness of this feature of medical education was one of the glaring faults of the old system, and arose out of the fact that hospitals were far less numerous than they are at the present time, and that, from the necessities of the situation, the independent origin of the medical school became a custom which has continued almost unimpaired to the present day.

In Boston the medical school flourished for nearly one-third of a century before its teachers realized the importance of this problem. A circular was then issued in 1810, in which the statement was made that "a hospital was an institution absolutely essential to a medical school." Would that all teachers of that time had realized sufficiently that fact and had educated the public to recognize the necessity of such a close relation of the two. Many of the older members of this Congress can remember the old-fashioned prejudice which resented the intrusion of students into the hospital wards. The theory of the trustee of that time was: This money was given for the cure of patients and not for the education of physicians. They could not be persuaded that the two interests were identical.

The change of feeling in more enlightened times was indicated by the benefactor of the great Johns Hopkins Hospital. At the opening of that hospital in 1889, Dr. Billings showed the advantage of such a union in the following words:

"It is well known to those familiar with the subject that the sick in a hospital where medical instruction is given receive more constant, careful and thoughtful attention than do those in a hospital where no such instruction is given. The clinical teacher must do his best; keen eyes will note every error in diagnosis, every failure in results of treatment. Moreover, the very act of teaching clarifies and crystalizes his own knowledge in attempting to explain, the dark places become prominent and demand investigation, and hence it is that those cases which are lectured on receive the best treatment. I need say nothing here on the other side of the question; the value of properly trained physicians to the community and the necessity for hospital instruction in such training. Johns Hopkins understood all this, and especially directed that 'in all your arrangements in relation to this hospital you will bear constantly in view that it is my wish and purpose that the institution shall ultimately form a part of the medical school of the University.'"

The reaction in favor of clinical teaching is becoming daily stronger, and no school can hope to compete with the great schools of the country which does not have control of what is usually called "clinical facilities." This term must unfortunately still be used; for the number of schools which have a hospital of their own is yet exceedingly small. The union between the two is in most of our large cities becoming a more and more intimate one.

Another immense advantage which the possession of a hospital gives to a faculty is the control of appointments. Most schools are now obliged to select their teachers from members of the staffs of hospitals in their city who have services at times of the year which enable them to teach. These individuals are appointed by laymen who have no knowledge of or regard for the necessities of medical education. Faculties thus placed are unable to select teachers of national reputation, as there is no appointing power which enables them to give such a person the material with which to teach. This is a grave defect in our system, and one which the leaders in medical education should not forget to impress upon the profession and the public.

But, while applauding the movement in favor of clinical teaching, it is perhaps well at the present time to consider whether systematic or, as it is usually inaccurately called, "didactic" teaching should be abandoned. The discussion as carried on in medical journals, appears to lean in this direction. A course of systematic lectures enables the teacher to cover ground which he would be unable to do, even in a clinic most richly endowed with material. The method of handling the subject differs entirely from that adopted at the bedside, and in a well regulated four years' course I believe the systematic lecture should still retain a prominent place. Clinical instruction should be abundant and of the most varied kind. Instruction of the class in small sections is a most desirable feature of this department. It involves a greater expenditure of time, an increase in the teaching staff and great ability as an organizer in the head of the department. It is the squad drill, however, which brings the student in most intimate contact with disease.

To carry out these ideals necessitates a "plant" far in advance of that which the average school now possesses. No such enterprise can be undertaken without that aid which has hitherto been conspicuous by its absence. I refer to endowments; the valuable paper of Dr. Bayard Holmes already referred to gives some interesting data on this subject. He says:

"The productive funds in the hands of medical schools, both those connected with and those independent of universities in the United States was in 1889, $249,200, while at the same time there was in the hands of schools of theology productive funds to the amount of $11,939,631. The value of buildings and grounds used by medical schools at the same time was $4,047,618, and the theological schools were accommodated with buildings and grounds valued at $7,762,095. The medical schools had in 1889, 12,238 students who paid tuitions to the amount of $763,761, while at the same time the theological schools enrolled 6,989 students.

"I am able to reinforce these figures by an abstract of the statistics for medicine, theology and technology as reported to the Bureau in June, 1892. The medical schools possessed buildings and grounds in 1882 valued at $7,507,937, and productive funds amounting to $611,214. Medi-

cal departments of State Universities also received State aid in 1892 amounting to $40,500, which, if capitalized at 5 per cent., would be equal to an endowment of $810,000; making a total endowment of $1,421,214. There were 16,731 medical students in attendance.

"The theological schools report productive funds amounting to $17,599,979, and stated, at the same time, the value of their buildings and grounds was $10,720,860. They had 7,672 students in attendance.

"Technological schools report productive funds amounting to $13,229,940. These institutions received from State appropriations or municipal aid in 1891-92, $747,504, which, if capitalized at 5 per cent., would be equivalent to an endowment of $14,950,080; making a total endowment for schools of technology of $28,180,020. There were enrolled in the schools of technology 10,921 students, about one-third of whom were in preparatory courses. It will thus be seen that the endowment of theology is increasing at the rate of about two million dollars a year. The technological schools are well provided for, but medicine has scarcely raised its endowment, even at the most liberal estimate, to a million and a half."

Probably the available funds possessed by our medical schools are somewhat larger than these statistics show, but they give the proportions which are needed to impress upon us how little financial encouragment medicine receives. When we realize what a valuable factor the medical man is in the rapidly increasing development of the territory of a vast and prosperous country like ours, it seems as if his claims to receive encouragement should be listened to. He does not build railroads or organize society in new lands, but he is in the foremost rank of pioneers, with the complete equipment which our teachers can give him today, and he becomes a most valuable member of society. He protects the young colony from epidemics; without him State medicine could not exist, and States could not be provided on a basis which would ensure prosperity.

These ideas should be impressed upon our men of wealth and upon the State governments as well. In the meantime it is important that we should adopt as a principle in our new departure in education that the medical faculty should have personal control of hospital wards and management. Let this work begin in a small way at first, but with a view to future development. Such a change can only be brought about by a slow process of evolution. The sooner, therefore, the principle is recognized and adopted, the better. It is difficult for a prosperous school which has abundant opportunities for bedside teaching to realize this, but it cannot develop beyond a certain point until it has established its own independence.

I cannot help believing that in this direction lies one of the greatest avenues of development of our system of medical education in the future.

THE MISUSE OF DRUGS IN MODERN PRACTICE.[1]

BY JOHN T. G. NICHOLS, M.D., OF CAMBRIDGE.

(Concluded from No. 11, p. 264.)

LET us now turn to the brighter side of our subject, and consider some of the great advances in the art of healing in which drugs have had no part. The work which State medicine has done was ably presented to this Society four years ago, by one who has won an enviable distinction in this department. I shall draw my illustrations from those things that come home to us in our daily work.

The advance in knowledge that has come from modern discoveries in Biology has revolutionized the art of medicine in many of its aspects. The antiseptic method has so changed the practice of surgery and of midwifery, that some most fatal diseases, which to those of us now only in middle life, were frequent reminders of the limitations of our art, are almost unknown to the younger members of this Society.

Let us carry ourselves back in memory to the operating-room of the Massachusetts General Hospital thirty years ago. It was, I suppose, as complete in its appointments as that of any hospital of the time. Its surgeons were certainly the equals in knowledge and skill of those of any institution of its kind. Taking off their coats, from motives of economy, certainly not of cleanliness, the surgeons put on the garments reserved for their work, which had hung in a dark closet since they were last used. Stained and stiff with the blood of scores of patients, they were worn, perhaps, with something of the pride which a veteran soldier feels in the uniform that bears the marks of many a hard fought field. Instruments were taken from the cases, and used without further preparation. Sponges were washed in plain water, and used from case to case. Hands were washed in soap and water only. The patients were removed to the wards, to be a source of anxiety to their attendants until their wounds were healed. That this anxiety was justified the records of the hospital will amply prove. One of those surgeons in the annual address to this Society twenty-nine years ago, thus describes what happened after operations: "I remember the time, when after an amputation, or the excision of the breast, or a large tumor, it was the universal rule to bring the edges of the cut integuments together nicely with straps, compresses, and a bandage, with the full assurance of finding the wound nearly healed on the removal of the dressings. At the present day, however, such a result is rarely attained in city practice; union by first intention being, for the past twenty years, the rare exception."[24]

I need not draw the picture of the operating-room in the same hospital to-day. You are all familiar with it. The son of the man who wrote the words I have just quoted would tell you that the exception in 1864 has become the rule in 1893.

The use of dangerous drugs as disinfectants, and in protective dressings, was considered a necessary part of antiseptic treatment in its early days. Great harm, and even death resulted from their use in no inconsiderable number of cases. Now antisepsis has given place to asepsis. Heat has largely supplanted poisonous drugs, and the treatment of wounds has become much simpler and safer, and has lost nothing in efficiency. I will not weary you with illustrations of cases to which the surgeon of to day brings healing, where the physician of thirty years ago stood helpless, happy if he could give his patient an easy death.

The statistics of lying-in hospitals since the importance of cleanliness in midwifery practice was accepted by the profession, show how great a saving of life has resulted from the discovery of this truth, which was made and announced by Semmelweis, in 1846.[25] In the wards of the Vienna hospital in which students

[1] The Annual Discourse delivered before the Massachusetts Medical Society, June 14, 1893.

[24] Recent Progress in Surgery, by J. Mason Warren, M.D., Medical Communications of the Massachusetts Medical Society, vol. x, No. iv, Boston, 1864.

[25] London Lancet, October 29, 1892.

had their clinical teaching in midwifery, the mortality averaged nearly ten per cent., while in those to which only midwives had access, it was less than four per cent. Semmelweis connected this difference in mortality with the fact that the students handled dead bodies, while the midwives did not. The discovery was made, the remedy was applied. The students were directed to wash their hands in chlorinated water before entering the lying-in wards. The mortality fell from over twelve per cent. to less than four per cent. in six months, and later, to less than two per cent. The principle of aseptic midwifery was found out. Its only advance has been in its details. Chlorine still maintains a high rank in the list of modern germicides. The profession was so blinded by theory that these facts, so plain that we wonder they were not at once accepted, were lost sight of. The literature of puerperal fever grew. The treatment by drugs was always ineffective, while the real cause was lost sight of in the many theories of its nature with which the books abounded. Semmelweis died before the truth of his discovery was recognized. Now it is proposed to build a monument to his memory as the founder of aseptic midwifery.

While we accord all honor to the man who found out the cause of puerperal septicæmia, and told us how to prevent it, we should not forget that an honored member of this Society first brought before the profession facts which should have opened its eyes to the truth. More fortunate than Semmelweis, he lives to see the correctness of his views acknowledged by all. In 1843, Oliver Wendell Holmes published his essay entitled "Puerperal Fever a Private Pestilence," in which he cited many cases showing that this disease had often followed the path of individuals, while their neighbors did not meet with it. He stated its infectious nature. He declared that a physician should cease to attend cases of labor if puerperal fever occurred in his practice; that he should not go from an autopsy to the lying-in chamber; and that he should keep himself scrupulously clean in his dress and person. These views were violently opposed by some, doubted by most, acted upon by a few. To show how theory sometimes treats facts when they happen to oppose it, I quote from the essay the words of Professor Hodge of Philadelphia: "The result of the whole discussion, will, I trust, serve not only to exalt your views of the value and dignity of our profession, but to divest your minds of the overpowering dread that you can ever become, especially to women under the extremely interesting circumstances of gestation and parturition, the minister of evil; that you can ever convey, in any possible manner, a horrible virus, so destructive in its effects, and so mysterious in its operations, as that attributed to puerperal fever." [26]

Let us narrow the illustration to a single disease. Not many in this audience can go back in memory to the time when croup was supposed to be a single disease. The sudden and noisy attack which strikes terror to the mother's heart, and summons the tired doctor from his first sleep, was looked upon as the early stage of what we know as membranous croup. All cases were subjected to the same treatment. Bleeding, mercury, antimony, were freely used. Hive syrup was a domestic remedy, which still survives in the Pharmacopœia under the name of Compound Syrup of Squill. If the patient lived, drugs got the credit. If he died, friends were comforted by the assurance that nothing had been left undone. That it would have been well if much had been left undone, no one who has seen a child in the collapse of antimonial poisoning will question.

More than fifty years ago, John Ware published his investigations on the natural history of croup. He showed that at least four diseases had been included under this name. One was so insidious in its onset that it seldom came under the notice of the physician until it was well advanced. Its diagnosis was not difficult. In almost all cases it could be determined by the presence of exudation in the throat. It was very fatal, and the treatment then in vogue certainly did no good, and probably did harm. A second form resembled the first in the character of the voice and respiration, but was distinguished from it by the absence of false membrane, and its almost certain recovery. The other forms, alarming in their early symptoms, had no exudation in the throat, and got well under simple treatment.[27] Time has confirmed these results, and bleeding, mercury, and antimony are things of the past in the treatment of croup.

Time will not allow me to pursue this subject further. The gain which our art has made from increased knowledge of the natural history of disease, cannot be overestimated. It has overthrown false and harmful methods of treatment, not by substituting others equally erroneous, but by leading us on to the solid ground of truth.

I have brought to your attention some of the ways in which, as I believe, we fail to uphold in the community correct ideas of the powers and limitations of the medical art. I have tried to set forth some of the limitations to the usefulness of drugs, and to point out the great advances which have followed a better knowledge of the natural history of disease. Let me not be understood as denying the good which drugs may do as aids to nature. The practice of our art would be dreary indeed were we wholly deprived of them. But that the great activity of the chemist and the pharmaceutist in these days is leading us away from the right path, I am convinced. The history of medicine is full of illustrations to confirm me in this belief.

It needs no argument to prove that the public does not judge our art correctly. Nor is it true to say that ignorance is the only cause of this false judgment. The public is neither ignorant nor unintelligent in most matters affecting its welfare. It is well to ask if we are not responsible, in some degree, for a state of things which we cannot fail to recognize. These words of John Bell may have an application to the present day: "I have also observed, that where there exist any very singular prejudices connected with our profession, they have first arisen among the profession, though now, perhaps, they are to be found only among the vulgar; and when there have been ill-reports among the vulgar concerning the practices of medical men, they are seldom entirely void of truth." [28]

What, then, can we do to correct the false views of the powers and limitations of the medical art which still prevail?

We should teach that disease is not caused by the laws of nature, any more than the injury that the

[26] Puerperal Fever as a Private Pestilence, by Oliver Wendell Holmes, M.D., Boston, 1855.

[27] Contributions to the History, Diagnosis, and Treatment of Croup, by John Ware, M.D., Boston, 1850.

[28] The Principles of Surgery, by John Bell, London, 1826, vol. i, p. 16.

artisan sustains from the breaking of a scaffold is caused by the law of gravitation. The law is beneficent; the harm comes from violating it. If we could live in perfect harmony with the laws of nature, it is not unreasonable to say that disease would be unknown, and the end of life as natural and as painless as its beginning. This ideal condition can never, perhaps, be reached, but just as far as we have made progress towards it, has disease grown less. We have not, and never shall have the power to change the laws of health, but we can increase our knowledge of them, and declare the absolute dependence of our art upon them.

Sure as is the penalty of the violation of nature's laws, there is one upon which our art securely stands. It is well stated by one of our great surgeons in these words: "After a part has been changed by disease, it tends naturally to regain a perfect state." [29] Certain in its action as is this law, plainly as its working may be seen in disease, it is not fully appreciated, even in the profession. It is not strange that the public should have incorrect views of it. Recounting the advances of modern surgery, a recent writer [30] speaks of the old practice of leaving ruptures of the abdominal viscera to the unaided efforts of nature, and contrasts it with the resources of modern surgery, quoting Billroth as saying that the *vis medicatrix naturæ* is a better physician than surgeon. With equal reason might we blame nature if she failed to cure a case of pneumonia left uncared for in the street. Nature, not the surgeon, heals the wound. The old surgeon could cut as skilfully and sew as deftly as the surgeon of to-day. Ignorance of nature's laws tied the hands of the older man; a better knowledge of them enables the modern surgeon to remove the obstacles from her path.

From the standpoint of the physician, the argument still holds good. Experience proves how little we can control disease by drugs. The results of modern study point out clearly the way by which we may hope to prevent it, or to aid nature in her attempts to cure it.

We believe we have discovered in a bacillus the cause of consumption. If the seed falls into good ground it brings forth fruit. If it falls upon stony ground it withers away. How hopeless a task it is to utterly destroy the seed, a glance at a microscopic slide of tubercular sputum will convince us. How to make the soil infertile is the problem we have to solve.

If the seed falls into good ground, and brings forth an hundred fold, we still can see the working of the healing power of nature. She tries to wall off the diseased from the healthy parts. She throws off the tissues which the disease has killed. She closes the vessels which the process of destruction threatens to lay open. She tries to close the gap which is left, and she does not cease her efforts while life remains. Sometimes she succeeds in arresting the disease, and a study of these fortunate cases indicates the way our attempts to aid her should follow. The most sanguine believer in drugs will find little in this study to strengthen his faith. Pure air, good food, all things included under the name of hygiene, are the only agents in which we can put our trust.

The Cambridge Hospital has wisely chosen for the motto on its seal, these words, — "Man tends, God mends." The truth they express will only be made clearer as science advances towards perfect knowledge.

The wise general never fights on the ground his enemy has chosen, if he can avoid it. The quack takes his stand on the power of drugs to cure disease. Here he is strong. He can use the argument of *post hoc, ergo propter hoc*, more effectively than the educated physician. Restrained by no considerations of truth or humanity, his promises of cure are marred by no ifs and buts. We cannot wonder that the public, comparing his ways with ours, and finding the points of likeness I have described, should so often choose the broad way he offers, rather than the narrow way which rational medicine indicates as the only path to health.

Every man, says Bacon, owes a debt to his profession. It is given to few to be the discoverers of great truths, but the humblest of us may do his part to raise our art to a higher level. Let us give to drugs their proper subordinate place, using only those which experience has proved to be safe. Let us do all that in us lies to aid nature in her work. Slow to accept praise for our successes, let us study our failures with candid minds, and report them honestly, that others may learn from them. So shall we lend our influence to uphold in the community correct views of the powers and limitations of medical science and art, and to make clear the distinction between the regular practice of medicine, and the practice of quackery.

In thus discharging the debt due our profession, we shall best fulfil the duty we owe our patients. The relation of the physician to his patient is a sacred one. The sick man puts his life in our hands. He follows our directions without question. We have no more right to experiment upon him with a doubtful drug, without his knowledge, than the surgeon has to perform an operation without his consent. The law protects him from the operation he does not consent to; the moral law alone guards him from the drug which may be more dangerous than the surgeon's knife. "The first great law in therapeutics is to do no hurt."

And, finally, to use the words of Jacob Bigelow, "the importance and usefulness of the medical profession, instead of being diminished, will always be elevated, exactly in proportion as it understands itself, weighs justly its own powers, and professes simply what it can accomplish. It is no derogation from the importance of our art that we cannot always control the events of life and death, or even of health and sickness. The incompetency which we feel in this respect, is shared by almost every man upon whom the great responsibilities of society are devolved. The statesman cannot control the destinies of nations, nor the military commander the event of battles. The most eloquent pleader may fail to convince the judgment of his hearers, and the most skilful pilot may not be able to weather the storm. Yet it is not the less necessary that responsible men should study, deeply and understandingly, the science of their respective vocations. It is not the less important for the sake of those whose safety is, and always will be, committed to their charge, that they should look with unbiassed judgment upon the necessary result of inevitable causes. And while an earnest and inquiring solicitude should always be kept alive in regard to the improvement of professional knowledge, it should never be forgotten that knowledge has for its only just and lasting foundation, a rigid, impartial and inflexible requisition of the truth." [31]

[29] Paget: Surgical Pathology.
[30] Rivington: London Lancet, April 1, 1893, p. 713.
[31] Medical Communications of the Massachusetts Medical Society, vol. v, Boston, 1836.

Original Articles.

TYPHOID FEVER IN BOSTON.[1]

BY J. H. MCCOLLOM, M.D.

ALTHOUGH typhoid fever is not so prevalent in Boston as some of the other zymotic diseases, yet it is sufficiently frequent to demand a careful inquiry into the cause of its comparative prevalence. The influence of typhoid fever on the death-rate of Boston can be appreciated from a study of Chart A, which shows the number of deaths from twenty-five principal causes for the year 1892. The diseases generally classed among the zymotic are indicated by the broken line. From this comparative statement it is evident that typhoid fever is not a very potent factor in increasing the death-rate of Boston.

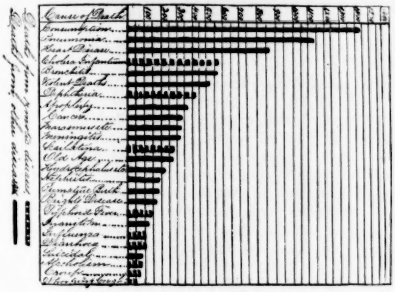


CHART A.

The effect of a good public water-supply in diminishing the prevalence of the disease is illustrated by the history of typhoid fever in this city for the past forty-seven years. A study of mortuary statistics shows that for the four years from 1846 to 1849 inclusive, when the water-supply was taken from wells the ratio of deaths per 10,000 of the living was 17.4; that after the introduction of Cochituate water in the latter part of 1848, the rate commenced to decline, so that in the semi-decade from 1850 to 1854 the ratio was 8.2 per 10,000 of the living. Since 1854, with a few exceptions, the rate has gradually diminished each year until it has fallen to 2.9, the rate in 1892. Another very interesting fact bearing on the subject of a public water-supply as compared with wells, is that in Charlestown, for the five years subsequent to the introduction of the Mystic water, 1866 to 1870, there was a very decided diminution in the ratio of deaths from this disease as compared with the five years previous to its introduction.

For the purpose of a study of the prevalence of typhoid fever in Boston as compared with the disease in ten American and six foreign cities Chart B, which shows the ratio of deaths from typhoid fever per 10,000 of the living in Boston, New York, Philadelphia, Chicago, a group of cities comprising Worcester, Lowell, Fall River, Cambridge, Lynn, Springfield and Haverhill, the aggregate population of which equals that of Boston, London, Paris, Berlin, Vienna, Glasgow and Moscow for the five years from 1888 to 1892 inclusive, has been prepared. It will be seen from this chart that the ratio of deaths per 10,000 in Boston is 3.64; that in New York the rate is slightly lower, 2.30; that in Philadelphia the rate increases to 6.49; that in Chicago the rate is 8.64; and that in the group of cities the rate is 5.11. So far as the foreign cities are concerned, it will be seen that Vienna, Berlin, London and Glasgow have respectively

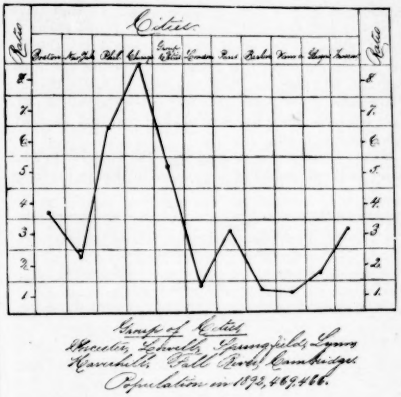


CHART B.

rates of 1.19, 1.24, 1.35 and 1.72; that Paris and Moscow have each a rate of 3.16, nearly the same as that of Boston. It should be remarked, however, that, owing to the prevalence of typhus fever in Moscow, the liability of mistaking typhoid fever for this disease is much greater than in any of the other cities, and therefore the statistics in Moscow cannot be considered absolutely reliable as far as typhoid fever is concerned. It is also evident, from a study of this chart, that in the

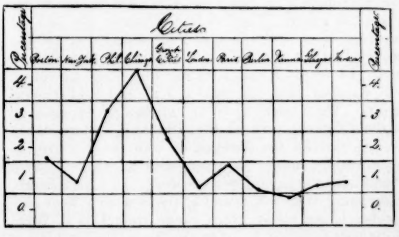


CHART C.

American cities, those having a good water-supply have a low rate, for instance, New York and Boston; that in Philadelphia and Chicago, the water-supplies of which are certainly not above reproach, the rates are comparatively high. In the group of cities it will be seen that the rate is nearly double that of Boston. While it is true that some of the cities, included in the group, have a good water-supply, it is also true that in all of them there are a greater or less number of wells which are likely to become contaminated by the

[1] Read before the Boston Society for Medical Improvement, May 8, 1893.

discharges from typhoid fever patients, and thus prove active agents in spreading the disease.

In order to avoid all sources of error in regard to the population which in some instances has been estimated and in some instances enumerated, Chart C, which shows the percentage of deaths from typhoid fever to the total mortality in these several cities, has been drawn. From this chart it will be seen that the percentage of deaths from this disease to the total mortality in Boston is 1.53; that in New York the percentage is .91; that Philadelphia and Chicago have a rate of 3.13 and 4.51, respectively. In the group of seven cities before mentioned the per cent. is 2.28. In the foreign cities it is found that London has a per cent. of .68; that in Paris the rate is 1.40; that in Berlin the rate is 1.58; that in Vienna the rate is .40; that Glasgow has a per cent of .77; and that in Moscow the rate is .83.

Chart D shows the ratio of reported cases of typhoid fever to the thousand of population in Boston for three

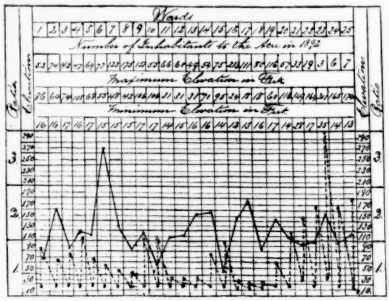


CHART D.

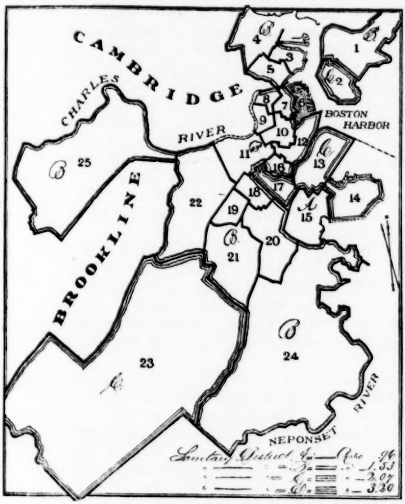
years, from 1890 to 1892 inclusive, with the number of inhabitants to the acre in each ward in 1892, and the maximum and minimum elevation in feet above mean low water. The full line indicates the ratio of reported cases to the thousand of population, and the broken line the maximum and minimum elevation in feet. In Wards 1 and 2, comprising East Boston, it will be seen that the ratio is 1.18 and 2.11 respectively. There seems to be no satisfactory explanation of the difference between the ratios in these two wards. In this district the question of wells as a source of water-supply cannot be considered, as no wells were found where typhoid fever occurred. In Charlestown, comprising Wards 3, 4 and 5, there is very little difference in the ratios which range from 1.35 in Ward 3, to 1.69 in Ward 4. Situation near tide level is not an important agent in causing the prevalence of the disease in this locality, for the highest ratio was reached in the ward that has the greatest elevation, namely, Ward 4. The slight increase in the frequency of the disease in this ward is probably due to the fact that in this locality the majority of the population leave the city for a greater or less length of time during the summer months, and contract typhoid fever in the country. Mystic water as compared with Cochituate can have no great influence in causing the prevalence of the disease as the ratio of cases in Charlestown is lower than that of most of the other wards of the city. In the city proper, comprising Wards 6, 7, 8, 9, 10, 11, 12, 16, 17 and 18, the ratio varies from 3.20 to the thousand in Ward 6, to 1.05 in Ward 10. The average ratio for these wards is 1.77. The high rate in Ward 6 may be explained by the character of the population, which is composed of newly-arrived immigrants who are particularly susceptible to the disease, of laborers employed outside of the city in places where the water-supply is taken from wells, and of peripatetic merchants who are exposed to influences which are likely to cause typhoid fever. Ward 16, with a ratio of 1.94, the most crowded ward in the city having a population of 213 to the acre, the inhabitants of which, as a rule, remain at home during the entire year presents a marked contrast to Ward 6, with a ratio of 3.20. Concerning the other wards of the city proper, as the variation of the ratios is so little, the difference in elevation so slight, and the social conditions of the inhabitants so varied, it is impossible to draw any satisfactory conclusions regarding the prevalence of the disease. In Wards 13, 14 and 15, comprising South Boston, the highest ratio, 2.03, is reached in Ward 14, the lowest in Ward 15, .96. On general principles it would nat urally be supposed, considering the character of the houses and their situation near tide level, that we should have a high ratio of cases of typhoid fever in Ward 15, and the only explanation of its comparative immunity is the fact that the majority of the inhabitants remain at home during the entire year and are not subjected to the influences of a contaminated water-supply. In Roxbury, which includes Wards 19, 20, 21 and 22, the ratios vary from 1.80 in Ward 19, to 1.44 in Ward 22. The morbidity of these four wards throws no light on the cause of the frequency of this disease. Ward 23, or West Roxbury, has a population of three to the acre, a maximum elevation of 301 feet above mean low water, and a minimum elevation of 35 feet. There is nothing in the natural condition of this ward that would seem to predispose to typhoid fever. The ward is not crowded, there is no made land in it; there are comparatively few tenement-houses, and yet its ratio of cases of typhoid fever is larger than in twenty of the other wards of the city. In only two instances during the past year have cases of typhoid fever occurred in houses where the water-supply was taken from wells, so that it is evident that contaminated wells have not been active agents in spreading the disease in this locality. In Ward 24, or Dorchester, which is not nearly so elevated as Ward 23, and in which there is a very considerable extent of marshy land, the ratio of cases to the thousand of inhabitants is 1.42, a considerable diminution as compared with Ward 23. In Ward 25, or Brighton, which is somewhat elevated and has a sandy soil, the ratio of cases to the thousand of the inhabitants is comparatively low, being 1.62.

Map E represents the city divided into sanitary districts according to the ratio of reported cases of typhoid fever to the thousand of population, for three years, from 1890 to 1892, inclusive. The districts are indicated by letters. Sanitary district A, consisting of only one ward, namely, Ward 15, has an average ratio for the three years of .96. Sanitary district B includes Wards 1, 3, 4, 5, 7, 8, 9, 10, 11, 12, 16, 18, 19, 20, 21, 22, 24 and 25. The average ratio of cases to the thousand of population is 1.53. Sanitary divis-

ion C, composed of Wards 2, 13, 14, 17 and 23, has a ratio of reported cases of 2.07. Sanitary district D, Ward 6, has a ratio for the three years, 1890, 1891 and 1892, of 3.20.

The influence of defective drainage on the prevalence of typhoid fever in this city is very slight, for of the 1,537 houses where the disease occurred during 1891 and 1892, only 699 were found to have broken or improper drains. Privy vaults are so few in Boston that they can have no causal relation to typhoid fever.

It has been shown, by the fact that typhoid fever has steadily diminished in Boston the past few years, that our water-supply is above suspicion. It has been proved by the statistics of the reported cases for the past three years, that neither situation, so far as tide level is concerned, nor a crowded condition of a locality are important agents in causing the prevalence of



Map E.

typhoid fever. In order, therefore, to explain the frequency of the disease in Boston, it is a reasonable supposition that contaminated milk may be an active agent in spreading the disease. In the Boston *Medical and Surgical Journal* of July 19, 1888, is an extremely interesting and instructive paper by Dr. Charles Harrington, entitled, "An Epidemic of Typhoid Fever due to Infected Milk." This epidemic occurred during November and December, 1886, in the city of Cambridge. Investigation proved that 58 of 73 cases occurred in 36 families who obtained their milk from the same source. It was found that this milk came from a farm where there had been two cases of typhoid fever three weeks previous to the outbreak of the epidemic in Cambridge. As there was no local condition at this time to explain the outbreak of the disease, it therefore seems evident that the cases of typhoid fever on the milk farm were the cause of the disease in Cambridge. Prof. Wm. T. Sedgwick read a paper, January 26, 1893, before the Massachusetts Association of Boards of Health upon "An Epidemic of Typhoid Fever due to Infected Milk." After very carefully investigating the course of the epidemic, which occurred in Somerville, Prof. Sedgwick was thoroughly convinced, and with reason, that the cause of the outbreak of the disease was due to contamination of the milk by the discharges from a man in the first stages of typhoid fever. It was a significant fact that when this man was ill enough to go to bed the epidemic commenced to decline. It is unnecessary to more than allude to the many other instances on record where epidemics of typhoid fever can be absolutely traced to infected milk. As bearing on this fact, it is of interest to note that in the foreign cities where the ratio of deaths from typhoid fever is much lower than in this country, there is a most rigid and careful supervision of the milk farms both as to their sanitary condition and as to the health of the employés. In London, for instance, where typhoid fever is comparatively rare, large dairy companies have been formed whose supply of milk is based on most minute and rigorous regulations. To prevent the spread of infectious diseases by milk, the farmer is required by his contract to call a physician if any person employed in his dairy is taken ill. If the disease is infectious, the secretary of the company must be at once informed, who will indicate the measures to be taken. In the event of serious disease the delivery of milk from the farm is forbidden. Arrangements are made with local medical offices of health to obtain information as to each case of infectious disease arising in the neighborhood of a dairy. In Berlin, also, there are stringent regulations regarding persons who have come in contact with any infectious disease having anything to do with milk. Similar observations are true regarding Vienna and Glasgow. In Paris, a large proportion of the milk comes from dairies situated in the city. The employés of these dairies are subjected to a careful medical supervision, and it is very reasonable to suppose that this has a decided effect in reducing the death-rate from typhoid fever in that city. In Boston, the milk comes from so many different places and such long distances, and passes through so many hands that it would be difficult to absolutely trace the source of infection in a given case. But there can be no doubt that in Boston, as well as in many other cities, infected milk may be, and is, much more frequently than is generally supposed, a cause of an outbreak of typhoid fever. While this statement so far as Boston is concerned, may not be capable of positive demonstration, it is certainly worth the careful consideration of the members of this society.

It is perfectly evident from a study of typhoid fever in Boston for the past few years that the disease, in the different sections of the city, is not due to a common cause such as the water-supply, for if the water was at fault we should have practically the same ratio of cases in each of the wards. Such is not the fact, however, for we find as great a difference between the wards of the city as there is between Boston and London, and Boston and Philadelphia. It may be asked if contagion is not an element in increasing the frequency of the disease. In reply to this it may be said that such a small proportion of cases could be traced to any previous exposure, that no satisfactory deductions could be reached on this point.

An attempt has been made in this paper to show:

(1) That the prevalence of typhoid fever in Boston is not due to the water-supply.

(2) That situation near tide level is not conducive to the frequency of the disease.

(3) That imperfect drainage is not an important factor.

(4) That, as the germs of typhoid fever can be easily and readily conveyed by milk, it seems reasonable to assume that the comparative prevalence of the disease in this city is due, in a great measure, to infected milk.

THE SANITARY CONDITION OF BOSTON.[1]

BY S. H. DURGIN, M.D.

THE sanitary condition of the city may be estimated in a variety of ways and with a greater or less degree of satisfaction. A superficial view of surfaces and surroundings may give sufficient evidence to one; the lack of prevailing bad odors, the want of a high death-rate, the absence of epidemic diseases or the existence of a well-ordered and equipped health organization may be satisfactory evidence to another, that the sanitary conditions are good.

All of these conditions might temporarily exist and furnish presumptive evidence of a good sanitary condition, while a careful investigation beneath surfaces and within doors, would alone furnish data upon which a positive statement could be made. A clean dry surface, a clean well-drained soil, good public and private sewerage, immediate destruction or removal of all decomposable wastes, good food and water-supplies, and a good surveillance over all, would constitute favorable conditions for a healthful city.

For the purposes of this brief paper, I shall confine myself to a statement of a few of the principal outdoor and in-door conditions as they appear to me. We cannot do better, perhaps, than to inquire as to how many of these favorable conditions we can lay claim to.

The area of the city now measures about 37 square miles, or 23,707 acres. Of this area, 1,812 acres are included in parks and public grounds. There are 558 miles of streets, of which 51 miles are paved, 204 miles are macadamized, and 282 miles are formed of gravel.

There are 56,809 dwelling-houses, and of this number there are 10,763 tenement-houses of three or more families each. A portion of the remainder of the city is occupied by various out-buildings for business purposes, leaving large tracts of unoccupied land, especially in the outlying districts.

The parks and public grounds for the most part may be said to represent good sanitary conditions. Some of the parks are not wholly completed but are rapidly approaching that desired end. The condition of some of the ponds will be improved by time; the pond on the public garden needs grading and paving for sanitary purposes. The paved streets have been greatly improved in the last two years, and, for the most part, are kept in a cleanly condition. Some of them, for the want of better paving, are very difficult to keep clean. Most streets in all cities present an unclean and offensive surface. This condition may be due to a faulty pavement, want of pavement, or a lack of care supported by a popular notion that an unclean and muddy condition of the streets has no appreciable effect upon the public health.

The macadamized streets, where much used, are unclean and offensive at least six days in the week. It would be in the interest of the public health, a cleaner atmosphere, greater public convenience and economy if all the macadamized streets, within the built-up portions of the city, were paved with asphalt or hard brick with close joints.

There are large tracts of vacant land in the outlying districts and some lying nearer the centre of the city. Some of this land is at a low grade, and in portions of it are found creeks and ponds of more or less stagnant water. This water becomes offensive and troublesome when found within the neighborhood of dwellings by becoming mixed with drainage or other foul matters.

Difficulty has been found in various ways in securing a total abatement of many of these nuisances. A resort to the courts and the use of the city's money has resulted in the abatement of the larger and more serious specimens of this class of nuisances; but there are still many delinquent owners under orders, or whose cases are in court at the present time. An improved law for use in securing the filling of such lands to a proper grade is now under consideration at the State House. It would be difficult to say to what extent this class of external or distant nuisances affect the public health, but they are unsightly, noisome, sometimes extremely offensive to smell and, doubtless, to some extent, prejudicial to the health of those within their immediate vicinity.

A very large part of the occupied area of Boston, exclusive of Dorchester, Roxbury and Brighton, has been made by raising the grade of marshes and by filling on tide-water flats. This made land is found particularly in South Boston, Charlestown, East Boston, and at the so-called North, South and West Ends of the city.

This made land is occupied principally for dwelling purposes with a dense population, and partly for business purposes. The grade of the streets in these sections is from twelve to eighteen feet above mean high water, while the cellars are below average high water, are frequently wet, and many of those in the business sections are so low as to require boxing to keep out the tide and surface-water.

It does not necessarily follow that a territory will be unhealthy because the land is made by filling and reclaiming it from tide water. A healthful residence upon such soil depends rather upon the height of the surface of the soil above the ground water-level, the character of the soil between those levels and the exclusion of the soil air from the cellar. The cellar, situated near the ground water-level and in the unclean soil, must continually receive unclean and damp air from such a soil, unless provided by special means to prevent it. Portions of this land have been made with the refuse and dirt of the city, while other portions have been filled by clean gravel from suburban hills. The cellar in one case gets the foul and damp air from the soil, and in the other it is a question of shutting out the dampness from below. For the most part, the soil of the higher elevations of the city is damp and wholly without artificial drainage, while the filled portions are at too low a grade to exclude dampness without extraordinary means.

The alley-ways of the city are numerous, occupying

[1] Read before the Boston Society for Medical Improvement, May 8, 1893.

no insignificant portion of the city's area, and are an important part of the city's conveniences. Until recently, there has been no definite understanding as to who should take care of them. This care has been exercised in part by the city and in part by the abutters, and the condition has been most unsatisfactory. For the most part they have been unpaved, uncleaned, and a source of much complaint. It has recently been decided, however, that the city will do no more cleaning in these private ways, and the Board of Health has undertaken to secure the proper care of them by the abutters who, alone, hold the fee in them and are responsible for their condition. These places should first be well paved, and then their cleanly condition may be secured at a trifling cost.

The cleaning of private yards and spaces about dwellings is a matter requiring the utmost vigilance of the health inspectors. There is no law or power known to the Board of Health by which certain people can be made to keep their premises clean for more than a few days at a time.

The old privy vaults and cesspools, with their accumulations of filth which were once so common, are now rapidly disappearing from the city. Nearly 7,000 of the privy vaults have been demolished in the last few years, and the few remaining, where a public sewer abuts the premises, are under orders to go. The yard cesspools, which are also common nuisances, are being changed from receptacles for sink and other house drainage, to those for surface drainage only,

The public sewerage is mainly good, including the improved intercepting system. More sewers are needed in many parts of the city where accumulations of filth are now being stored in vaults and cesspools, and are causing considerable annoyance. Many of the old sewers at the North and West Ends of the city are in a dilapidated condition, are very foul, and should be rebuilt without delay. The whole sewage of Cambridge, Somerville, Charlestown, Chelsea and East Boston still discharges into the Charles River and upon the flats in those sections, creating a most serious nuisance.

We see no remedy for this state of things except in the completion and use of the metropolitan intercepting sewer, which is still under construction and which ought to be completed at the earliest practical moment.

Private drainage in our city, like that in most cities, is unsatisfactory, the cause of an immense amount of inspection, complaint and annoyance, and, undoubtedly, the cause of much ill health.

To relate all that need be said concerning house drainage or plumbing in our city would make a very long story, which need not be told to-night. We have statute laws and city ordinances which specify the method, material and workmanship necessary in constructing house drainage. Plans for construction and repairs are submitted to, and the work approved by, the Inspector of Buildings. The Board of Health is called upon to find defects and to order repairs. Such repairs number each year about 4,500.

For the purpose of ascertaining to what extent defective conditions of plumbing exist, and to what extent traps are supplied and water-closets substituted for vaults, we have taken a large number of blocks of dwellings, both new and old, each season for thirteen years, and made house-to-house inspections with the following results:

Want of traps first five years, averaged 50 per cent.; during thirteen years 32 per cent.; and during the last year 22 per cent.; defective conditions of plumbing, first five years, averaged 49 per cent.; whole thirteen years 39 per cent.; and last year 34 per cent. Use of privy vaults, first five years 28 per cent.; for thirteen years 14 per cent; last year three per cent. This means not only a very poor state of plumbing, but a want of commendable progress in the substitution of a better condition, in other words, it indicates poor construction and inefficient repairs.

The removal and disposal of refuse material has become a very serious question to the city as a corporation, and to the individual citizens. At present, it is stored for a time about the dwellings, then removed by the city carts through the streets at a cost of about $170,000 per annum, and afterwards sold to the farmers to create nuisances elsewhere.

The street sweepings, house dirt, ashes, and a great variety of rubbish and refuse material, including some of the garbage, to the amount of 2,500 loads, or 100,000 cubic feet per week, are dumped in the harbor. It has always seemed to me that the kitchen waste should, by some special provision in the stove, be disposed of as soon as it is made. By this means all subsequent nuisance and expense would be avoided. In regard to the other wastes of the city which are now dumped in the harbor or upon vacant lots for filling, we are of the opinion that such material should first be burned and then used for filling.

Tenement and lodging-houses are objects for constant attention. Poor people and our newly-made citizens from abroad are much inclined to crowd into small spaces where they soon create a most unhealthful condition of things if left to themselves. We have vacated many of the worst of these buildings, have cut down and limited the number of occupants in others, burned much of the bedding, disinfected the remainder, and are enforcing a better degree of cleanliness, light and ventilation in both tenement and lodging-houses. This work can only be regarded as a most incessant and aggressive one in certain quarters of the city.

MASTOID MEASUREMENTS.

BY W. P. COUES, HARVARD MEDICAL SCHOOL.

I recently examined 400 crania at the Peabody Museum in Cambridge, with the view of determining (1) the relative frequency of the asymmetric mastoid processes, and (2) whether the mastoid process being small or the digastric fossa deep made any difference in the depth and direction of the lateral sinus.

I found that out of the 400 crania examined 13 (or 3.25%) had asymmetric mastoid processes; only marked differences such as could be plainly seen were taken.

This examination shows that in 96.75% the mastoids were symmetric; of the 400 crania examined 164 had either a small mastoid or a deep digastric fossa. Out of these 164, 136 (or about 83.3%) had a very deep lateral sinus coming up towards the mastoid antrum.

This percentage shows that where the digastric fossa is deep, or there is a small mastoid process, the lateral sinus is almost invariably deep, coming up towards the mastoid antrum and encroaching on the mastoid cells, so that in operating on the mastoid, if we find it small, or the digastric fossa deep, great care must be taken lest the lateral sinus be wounded.

Clinical Department.

FRACTURE AND INJURIES TO THE HEAD.

BY DAVID DANA SPEAR, A.M., M.D., FREEPORT, ME.

CASE I. A young man, age seventeen, fell upon a large broad belt, and was carried over a drum making some two hundred revolutions per minute. Thrown against the side of the building, striking his head against the rusty end of a clapboard nail, about one-third of the nail was driven through the left parietal bone and broken off flush with the surface. He was alone at the time of the accident, but was found face down upon the floor, unconscious, with stertorous breathing. The pulse was full and slow, pupils dilated — unconsciousness was complete. He could not be made to swallow anything placed in the mouth. It was impossible to remove the nail by forceps; and, of course, the only remaining thing to be done was to remove a disk of bone including the nail with a small trephine. This was done, with almost immediate return to consciousness. In about six weeks the young man returned to his work, complaining only of slight headaches when he became tired. This case occurred in the early part of my practice, previous to the days of antiseptic surgery, and may be only of interest in connection with the other cases following as illustrative of what happens to fall to the lot of village and country practice.

CASE II. Two children were coasting down a steep hill, their ages respectively six years and nine years. The sled struck against a tree; and the youngest child was dashed against it, striking the left side of her head with sufficient force to fracture the entire upper two-thirds of the parietal bone. The line of fracture was easily felt. When summoned, I found the child lying in bed, completely unconscious. Her limbs would remain in any position in which they were placed; the respiration was quiet and feeble; the pulse was feeble, frequent, and intermittent; the pupils were contracted. On placing any liquid in the mouth, it would be swallowed. I decided not to attempt any operative procedure at this time, but waited, carefully watching my patient's condition.

At the end of eleven days consciousness gradually returned; and at the end of four weeks she had so far recovered as not to need constant care and attention. During the first eleven days, ice was applied by means of a bladder placed upon her shaven head. The bowels were moved every alternate day with salines; and iodide of potassium was given in three-grain doses four times daily. At the end of six weeks recovery seemed permanent; and over the now intervening space of twelve years there have been no serious symptoms attributable to the injury.

CASE III. R. R., aged nine years, fell from a bridge a distance of fifteen feet, striking his head and left shoulder upon the rocks below. He was picked up insensible, and carried home on a mattress by several men. A physician was called, and pronounced the injury necessarily fatal. I saw the little patient about half an hour later. A fracture was found in the left parietal and frontal bone. One straight fissure extended from the lambdoid suture to the orbit, terminating a few lines internal to the supra-orbital foramen. The line of fracture crossed the coronal suture at right angles; and the whole line of fracture was three-fourths of an inch external to the median line of the vault. There was also a stellate fracture covering the upper half of the temporal bone; and the bone was so broken in three places as to allow the fragments to be driven down firmly upon the dura mater. The pupils were widely dilated, and the eyelids were closed. It was impossible to arouse the little patient. The respiration was quite full and noisy; the pulse was full but slow; deglutition absent, and any liquid placed in the mouth flowed out of it. Upon making an incision external to the fracture and around it, I was able to remove the pieces from the dura mater, to raise the depressed portions of the parietal, and to trace the first-described line with the supra-orbital foramen to the orbital portion of the frontal. The cellular tissue about the orbit was inflated, and the condition of emphysema obtained, showing that the frontal sinus had been opened.

The operation was carefully made, and with antiseptic precautions. The hair was cut from the head; the head was washed thoroughly with soap and water, and finally with a 1 to 1000 solution of bichloride. The instruments used were all sterilized, the hands washed in bichloride solution, and the sutures were of chromatized catgut.

An hour after the operation the boy became conscious. The second day the pulse reached 140; but the temperature never exceeded 99° F. After the second day the pulse became normal, and the recovery has been rapid and apparently perfect, without a single unfavorable symptom.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. T. BOWEN, M.D., SECRETARY.

REGULAR Meeting Monday, May 8, 1893, the President, DR. C. F. FOLSOM, in the chair.

DR. J. H. MCCOLLOM read a paper on

TYPHOID FEVER IN BOSTON.[1]

DR. CHARLES HARRINGTON read a paper on

THE PRESENT CONDITION OF THE BOSTON WATER SUPPLY.

DR. S. H. DURGIN read a paper on

THE SANITARY CONDITION OF BOSTON.[2]

PROF. T. M. DROWN: The subject of the water-supply of Boston is one I am much interested in. I do not know that I can add anything to what Dr. Harrington has said with regard to this water-supply. I agree with him that the water-supply is good and is not growing worse, that it is growing better. I, too, have been asked scores of times whether the Boston water is fit to drink, and my answer has always been that it is good water. Those who prefer spring water on æsthetic grounds because it is colorless, have a right to their preference; but those who say there is danger in drinking the Cochituate water are simply ignorant of the conditions under which the water-supply of Boston is collected and stored. I regard it as safer drinking-water than many of the spring waters which are sold. It is impossible to get a supply of fifty million gallons a day from an uninhabited region unless we go to a

[1] See page 295 of the Journal.
[2] See page 298 of the Journal.

great distance. A near-by supply to a great city will always have upon its borders a greater or less population. The collecting area of the Sudbury River, about 75 square miles in extent, has a population of about 350 to the square mile. Lake Cochituate has a small drainage area of 19 square miles and a population of about 850 to the square mile, the combined water-sheds having a population of approximately 450. The Mystic supply has about 850 to the square mile. By comparison it may be mentioned that the Croton water-shed in New York has 70 to the square mile.

The way in which house drainage usually reaches a stream is important. If sewage enters a stream directly and the polluted water is delivered promptly to the consumer, we have the maximum of danger. Where there is no sewerage system and the water gradually soaks into the ground and reaches the reservoir or collecting basin only after prolonged filtration the danger is reduced to a minimum. Many of you may have heard of the care that is supposed to be taken with the Croton water-shed. In one of the reports of the New York State Board of Health may be seen a great number of photographs of all the houses on the water-shed. There is very little said about the care of the Boston water-shed; but I know that there is as careful supervision of it as in New York. The superintendent, Mr. Fitzgerald, has a record of every house, barn and stable, on the water-shed, and of the changes which take place from year to year. Inspection is done very thoroughly and completely to detect accidental or intentional pollution.

The drainage of South Framingham, Marlborough, and Westborough, which formerly went indirectly by soakage, through the ground into the Cochituate supply, is now entirely removed by systems of sewerage, and goes outside the drainage area. The result of this is that the drainage of a very large population on the Sudbury water-shed has no more relation to the Boston water-supply than if it were in the western part of the State.

There is another ground for safety in the Boston water-supply and that is the large size of the reservoirs and the long time it would take for any disease germs entering these reservoirs to reach the consumer. I suppose it would take any matter entering Lake Cochituate by Pegan Brook (which drains Natick) two months before it reached the consumer in Boston, and more likely it would be a much longer time. The same may also be said of the reservoirs on the Sudbury River. But to make security doubly sure filters are now being constructed to filter all the water of Pegan Brook before it enters the lake.

Few are aware of the great purifying power of porous ground. A familiar instance in this vicinity is the filter gallery on the shore of Horn Pond in Woburn. This pond is highly polluted with the drainage from tanneries, yet the filtered water in the gallery which is one hundred feet or less from the pond, is almost perfectly purified as far as organic matter is concerned. Now the ordinary ground-water of a region like the Sudbury and Cochituate water-sheds has, on the average, been filtered a great deal more thoroughly than the water of Horn Pond. Moreover, the efficacy of filtration, both in nature and in artificial sand filtration, in the removal of bacteria is very great, so that the possibility of the passage of disease germs into a water-supply after a long passage through the ground is very remote. When a drainage area becomes very densely populated, it naturally becomes unfit for a source of water for drinking. In such case there is the alternative of artificial sand filtration or the seeking of a new supply.

Prof. W. T. Sedgwick: In listening to the speakers to-night the first feeling that I had was one of satisfaction, as a citizen, that the interests of the city of Boston are in the hands of people who are studying the subject with so much apparent intelligence as we see in these papers. If any one will take the trouble to ask what is going on in some other cities of our country and to see the class of people who have charge of their sanitary interests, I think he will return home with a good deal of satisfaction. Unfortunately I lost a portion of Dr. McCollom's paper, but what I heard of it interested me very much. It is a fact that we have more typhoid fever than some other cities in proportion to our population, less also than many others; and the question naturally arises, What does it mean? I have given no special study to this side of the subject, and was therefore very glad to hear what Dr. McCollom had to say; and it seemed to me that on general principles any one interested in sanitary science must heartily agree with most of it; for if there is anything clear nowadays it is that broken drains *per se*, new-made land, bad smells, etc., are not the principal causes of typhoid fever, if, indeed, they have anything whatever to do with it. Dr. William Budd showed, years ago, that pig-sties, dung heaps and the like could exist in a country town without causing any typhoid fever. When once this was introduced, however, it might flourish in such towns more than in others similarly situated. I was interested to hear Dr. McCollom speak of the wells. I have been studying some epidemics of typhoid fever; and although I have seen a number of them, involving possibly five hundred cases, I have not yet seen a single epidemic of typhoid fever or any cluster of cases of it which I could trace to a polluted well. I earnestly believe that polluted wells have occasionally produced typhoid fever, but I think that we have laid too much stress on these; and the experiments of the Lawrence Experiment Station have taught us much in that regard. A few feet of good filtering material will effectually protect against the germs of typhoid fever and ordinary bacteria.

The State Board of Health has been making in the last three years an interesting series of experiments of epidemics of typhoid fever, and some of the conclusions that have been arrived at may be stated in this way:

One of the leading causes of typhoid fever is polluted water-supply.

The next, perhaps, in importance, or one of the next, is polluted milk-supply — I mean here infected as well as polluted. If anything stands out clearly, it is that ordinarily polluted water will not produce typhoid fever. The city of Lowell is drinking very dilute sewage all of the time, but it is only now and then that it has epidemics of typhoid fever. One of the wells in Lowell is so bad in its chemical and bacterial analysis as to stand out conspicuously among all the wells we know, and yet careful investigation has shown that people using that water are not suffering from typhoid fever more than their neighbors who do not use it. The reason is simply that it is not infected.

The third cause, and probably throughout the State the principal cause of typhoid fever, is secondary infection, not usually direct contagion but in any one of

the many ways in which indirect infection may arise; and as this is less well recognized than it might be by physicians and sanitarians, it may be worth while to say just a word or two about it. One case was discovered in Provincetown in which the family consisted of ten persons. Typhoid fever was introduced into the family probably through one of the children who had been playing with the children of a neighbor's family in which there was typhoid fever. These families were Portuguese. You know how such people live. On the table of the common living-room there often stands the greater part of the day the beginning or the end of a meal — pieces of bread, cake, etc. The children come in from play. One or more of them is in the early stages of typhoid fever. They visit the privy, come back, finger the bread and cake, eating some and leaving some. Other children come in and eat of the food, and by some such vehicle as this one of the children of this family brought the germs of the disease from another family. Just two weeks from the date of the first case two more of the family of ten came down with typhoid fever. Two weeks later more came down and there were in all five successive crops of typhoid during which nine out of the ten in that family had typhoid fever at intervals of two weeks. There was no reason to suspect the sink-drain, the well or the privy — as these latter were used in common by other families. This particular family then had five successive crops of typhoid fever two weeks apart almost to a day.

The State Board of Health has collected other examples of the same sort and I think it may be safely said that the three causes which I have mentioned are the principal causes of typhoid fever.

It seems to me that it is pretty safe to conclude with Dr. McCollom that the water-supply of Boston is not productive of the typhoid fever of Boston. It seems to me, however, that it should be borne in mind that typhoid fever has been declining as the water-supply has been improving; and in the present state of our ignorance of the duration of the life of typhoid-fever germs, while we believe that such germs do not come through the water-supply of Boston, it may be wise to keep an open mind in that direction. I do not believe, however, that the typhoid fever of Boston is to be connected with the water-supply. With regard to the milk-supply, it seems to me much may be said. We have a most efficient milk inspector; but milk comes from all over New England, and no one knows the source of it exactly. Before we can decide that milk gives us this extra amount of typhoid fever, we must inquire whether our milk-supply is worse than that, for example, of New York, which has less typhoid than we have. I do not think that it is; and yet I do believe that there is a loop-hole here. I believe that some of the cases of typhoid fever in Boston are due to infected milk. Then there is the point of the people going out of town. I believe that this is a serious point. I believe that Boston, surrounded as it is with suburbs and not far from infected districts, such as Lawrence and Lowell, necessarily suffers through imported cases. Finally, there comes the matter of secondary infection, in the efficacy of which, I most firmly believe. I know of some cases in Boston in which secondary infection can be clearly traced. No one of these principal causes is in itself, probably, sufficient to account for the whole. What little excess there is, however, is probably chiefly due to the geographical situation of Boston and the migratory habits of the inhabitants. Boston is a place near regions of polluted water-supply, a place with milk-supply not entirely under control, and last and probably not least, there are abundant opportunities for secondary infection.

DR. F. W. DRAPER: The papers we have heard and the remarks we have had are full of suggestion to the sanitary student, and it is difficult to select out of the mass of material supplied, a single theme for further discussion. What I shall say will be in the line of reinforcing two points, one in Dr. McCollom's paper and the other in Dr. Durgin's. I want to emphasize what has been said by Dr. McCollom with reference to the milk-supply as a menace which should be watched continually and which has not received, it seems to me, in sanitary administration, the attention which it deserved as a probable potential source of the typhoid fever which we have in Boston. I think it is perfectly clear that the water-supply of Boston is above reproach in that matter and that we must search in other directions for the explanation of the etiology of the disease here. The milk-supply, it seems to me, presents a fair field for discussion in that relation. Occasionally, as we know, the matter has been discussed in this and other societies, but the practical results have been extremely small and not in proportion to the importance of the subject. The various epidemics that have been studied by Professor Sedgwick and others, are a demonstration that this menace is not imaginary but real. There is one other source of danger which has not been mentioned to-night in the discussion of the causation of typhoid fever, and perhaps an insignificant one from one point of view, and yet it ought not to be left out of view. I refer to the transportation of the typhoid infection by insects. The domestic house-fly is not a fastidious creature, either in its food or its habits. It can travel far and fast, and I think it quite probable that the house-fly can be the means of transporting to food from exposed typhoid stools the typhoid bacilli, and the practical lesson is in the nursing care of all typhoid patients, to promptly and thoroughly disinfect the stools so that they shall not be a source of danger.

One point suggested in Dr. Durgin's paper was the wasteful and highly improper method of disposing of the refuse of a great city. He has graphically described the method used here, and it seems to me one reform that can be inaugurated and carried out with propriety, is that the waste of the city should be more economically disposed of than at present. Cremation is the proper method and the sooner the City of Boston establishes a proper plan for that purpose, the better will our interests as a community be served and the safer will our public health be.

DR. S. W. ABBOTT: I have been much interested in these papers, particularly in the first upon typhoid fever, and I may add that during the past year or two I have made especial analyses of the whole State upon this subject, grouping the cities and towns according to the rate of deaths from typhoid fever to the population, for a period of twenty years (1871–1890). We do not know much about the reported cases except in the cities.

In the final grouping I find that Dr. McCollom's statement in regard to overcrowding is fully borne out, and that is, that typhoid fever is not a disease which is due to overcrowding. On the other hand, in

seven other diseases which were considered, measles, scarlet fever, diphtheria, small-pox, cholera infantum and phthisis; in each one of these overcrowding and density of population did much to contribute to their spread; but in typhoid fever we had the highest death-rate in the more sparsely-settled districts. The Connecticut River valley seemed to be more affected than any other part of the State.

PATHOLOGICAL SPECIMENS.

DR. RICHARDSON: The first specimen is an enormously dilated vermiform appendix, containing two large fæcal concretions. The patient, a young woman, presented the usual symptoms of a severe localized peritonitis of five days' duration. In the right lumbar region a marked dulness was found that extended towards the median line and gradually became lost in the normal abdominal resonance. Great tenderness and pain in this region indicated unmistakably an acute inflammatory process starting, probably, in a perforated appendix situated behind the ascending colon. The local conditions demanded immediate exploration. A very small amount of fetid pus was found behind the cœcum, the posterior wall of which was apparently the seat of a very great inflammatory thickening, and through which there was a small perforation. Further search, however, showed the tip of the appendix adherent to the under surface of the caput cœci, and situated so as to point towards the bladder. On separating the presenting end of the appendix with the finger, it was found that the thickened mass was the appendix itself, slightly adherent throughout its distal portion, and inseparably grown to the bowel along its proximal half. The body of the appendix was as large as the small intestine, and contained two slender and smooth concretions, one an inch and a half and the other an inch in length. There were two perforations, one at the tip and the other near the base. By an incision through the latter, the appendix was removed close to the cœcum and the parts tamponed with gauze. The patient is doing well.

It is unusual to see a specimen like this. Appendices may be very long or very short; they may be slender or thick, but it is remarkable to find one over an inch in diameter, even when inflamed.

Recent adhesions may be separated safely and easily in this disease, but it is always dangerous to make violent or prolonged efforts to break up the adhesions of long-standing inflammation.

In this instance the peritoneal cavity was opened — a complication much to be deplored whenever unnecessary, some authorities to the contrary notwithstanding. I was gratified in reading Senn's remarks today in support of this view (Chicago *Clinical Review*, vol. II, page 86).

The second specimen consists of several gall-stones of unusual shape and outline, resembling blackberries. All, found in a normal gall-bladder, made their presence known by occasional attacks of biliary colic, varying in direction and intensity. For the first time, having closed the gall-bladder with interrupted sutures, I left it in the abdomen, without drainage, — the so-called ideal operation. Convalescence was unusually brief.

The third specimen, closely related to this subject, is a dissection of the cystic, common, and hepatic ducts. The internal surface of the cystic duct shows numerous transverse folds of mucous membrane, with sharp edges, which prevent the passage of an instrument in either direction, even when by tension the canal is made straight. Much more difficult, if not impossible, would be the passage of a probe when the cystic duct is in its normal position of double curve. The hepatic and common ducts present no such obstacles to instrumentation. Even the normal constriction at the duodenal orifice permits the passage of a probe of considerable size.

These peculiarities, hitherto little if at all studied with reference to surgical interference, have become of very great importance in the progress of surgical art; they illustrate the necessity of teaching, in addition to the regions of classical surgical anatomy — limited as they have necessarily been to the extremities chiefly — the relations of those deep parts which are now the field of surgical progress.

During the past two years I may have had occasion to apply a knowledge of the anatomy of the carotid and jugular, or of the parts in Scarpa's triangle half a dozen times; during the same period I have needed a familiarity with the parts about the foramen of Winslow twenty, and about the vermiform appendix at least fifty times. The surgeon of to-day must be able to recognize, therefore, arteries, veins, and other structures in regions hitherto demonstrated only by the pathologist or by the pure anatomist. The field of anatomy, therefore, taught as an applied science, may be said to include the whole body; and the student who expects to keep up with the progress of surgery must know not only the surgical anatomy of the bend of the elbow, the axilla, or the groin, but also the cerebral convolutions, the foramen of Winslow, or even the spinal cord.

Recent Literature.

Forensic Medicine and Toxicology. By J. DIXON MANN, M.D., F.R.C.P., Professor of Medical Jurisprudence and Toxicology in Owens College, Manchester, etc. Philadelphia: P. Blakiston, Son & Co. 1893.

The literature devoted to legal medicine is not so full as to render a genuine addition to it unwelcome or superfluous. A book that shows real merit; that is not written with a purpose merely to gratify the writer's vanity, or simply to advance the publishers' commercial enterprise; that represents recognized authority; that gives new and attractive treatment to old themes; — such a volume will always win its way to favor. Judged by these tests, the work of Dr. Mann is a valuable contribution to modern medico-legal writings. Clear and didactic in style, judicial in spirit, concise yet comprehensive, it is a volume that can cordially be admitted to fellowship with older writings relating to forensic medicine and that will find congenial association with the masterpieces of Taylor and Casper and Beck and Orfila. Its primary merit is that while it discusses the usual variety of topics which are included under medical jurisprudence, it discusses them with an intelligent purpose to give them a modern and fresh flavor. It thus results that it is an attractive exception in its class; it is not a mere rehearsal and re-issue of old and familiar facts, grouped and studied by a new author; nearly all the citations are

dated within the past decade and while ample justice is given to older authorities their teachings are reviewed in the light of the latest experience and observations. The tone of the book is therefore distinctly original and progressive.

It is fair to state that the chapters show some inequality in merit. The section on Wounds, for example, is clearly inferior to that on Infanticide and the Proofs of Living Birth, and to that on the Signs of Death, Cadaveric Rigidity and Putrefaction. It would seem that some themes stimulated the author's zeal and industry more than others and that, while not indifferent to any parts of his work, there were certain portions which, he felt, he could discuss with relatively greater authority and ability.

An occasional lapse from smoothness and grammatical accuracy has escaped the notice of the proof-reader of this first edition and it is to be hoped that these signs of heedlessness will not appear in later issues. The critical reader, who reasonably looks for absolute freedom from error in a treatise on forensic medicine, feels a little shock of surprise when he comes on such expressions as these: "a goodly array of examples are at hand"; "neither the one nor the other are discoverable"; "the vulva are open and tumid"; "both cornuæ of the hyoid bone"; "pregnant sufficiently long as to render possible the birth of a living child"; "there was no blackening, neither round the wound, nor on the neck, nor face." Such words, too, as "quieten," "negligible," "disposedness," "unrespired," are novelties without standing in the dictionary.

But these isolated and infrequent departures from rhetorical rectitude are not mentioned to throw discredit upon a book which can justly lay claim to recognition as a reliable and attractive treatise to which the student and practitioner of legal medicine can turn with confidence that it will offer wise and trustworthy counsel for safe guidance.

Fonctionnement de la Maison d'Accouchements Baudelocque, Clinique de la Faculté, dirigée par le Prof. A. Pinard: Année 1892. Par DR. G. LEPAGE, Chef de clinique. 8vo, pp. 107. Paris: G. Steinheil. 1893.

This work is the annual report of the labors which have taken place during the year 1892 in the Baudelocque Clinic. This clinic is freely used for purposes of teaching, 224 students and numerous French and foreign graduates having received instruction during the year. The principles of asepsis are rigidly taught and enforced, as will be seen by the record of septic deaths, namely, three only in 1,834 cases, or 0.16 per cent., — a very creditable showing in a clinic so freely used by students.

The report is carefully classified, and will be useful to teachers and writers for statistical purposes. Chapter VI will be of especial interest at this time for its record of the results in the clinic with the revived operation of symphyseotomy. This operation was performed in thirteen cases, which are reported in detail. The mothers all recovered, although in several cases the convalescence was pathological; of the thirteen infants, all were born alive; but two died on the second day, and one on the third.

As a whole the report is highly creditable to the clinic; but we cannot forbear pointing out, as we have so often done, that the value of all obstetrical writings is greatly enhanced by the use of a uniform nomenclature. We cannot understand why the French obstetricians adhere to their old nomenclature. Had the new nomenclature been introduced by a German, we should not have expected the French to have adopted it; but as it was brought forward by a Scotchman at a Congress held in the United States, and as it was adopted for general use by a representative, international body, we fail to see why it should not be universally adopted, to the great convenience of all.

Elements of Human Physiology. By ERNEST H. STARLING, M.D., (Lond.), M.R.C.P. Small 8vo, pp. 437. Philadelphia: P. Blakiston, Son & Co. 1892.

This is an American reprint of the excellent little book by a lecturer on the subject at Guy's Hospital. It is the best *small* physiology known to the reviewer. Almost all purely histological matters are very properly omitted. Nearly every topic treated shows careful consideration of the freshest researches, there being perhaps, here and there, a tendency to lay a little too much stress upon the work of certain British experimenters. The illustrations are generally well selected and instructive. Naturally there is some disproportion of space allotted to the various topics but this is a necessary evil of small books about a big subject. The book is well calculated to supplant all "quiz-books" and "compends" as a syllabus for following lectures or for use in the cramming process which is sometimes unavoidable. The only criticisms which a somewhat cursory examination suggests are: a little weakness in the portion devoted to the chemical constituents of the body (especially as to starches and sugars); a somewhat "step-motherly" treatment of deglutition; and the statement that the residual air "amounts to about 2,000 c. c."

The Chemical Basis of the Animal Body: An Appendix to Foster's Text-Book of Physiology. Sixth edition, pp. 288. By A. SHERIDAN LEA, M.A., D.Sc., F.R.S. New York and London: Macmillan & Co. 1893.

This new edition of the "Appendix," the first for some ten years, will be welcome to all. It has grown into an independent work, being about four times as large as formerly, and is correspondingly better, good as it was before. In fact, there is no equally good account of the chemical side of physiology in English at the present time. Its convenient size and the fact that the part is sold separately at a reasonable price, must commend the book. Its pleasing freedom from obscuring technicality makes it an excellent book for medical students and for the practitioner who may wish to get an idea of the present views concerning ferments, ptomaines, proteids and so on. The new light recently thrown upon the composition of the sugars is briefly, but perhaps sufficiently reflected. The extensive references to the literature (quite complete to 1891) will be very useful to the student.

A slight defect is the neglect to note the synonyms of the various ferments. For example, the fat splitting ferment is now called "pialyn," but no intimation appears to be made of the existence of another name, "steapsin," which had already come into quite general use. Pialyn is also a particularly unfortunate innovation on account of its close resemblance in sound to "ptyalin," which it in no respect resembles. "Rennin," to which Foster had already committed himself,

is also retained in preference to the much more suitable "pexine" of certain French writers — at least more suitable except possibly for its likeness to "pepsin."

The Creation of God. By DR. JACOB HARTMANN, M.D., St. Louis Medical College; M.B., Toronto University; M.B., Trinity College, Ontario; Member of the College of Physicians and Surgeons, Ontario; Licentiate of the Royal College of Physicians and Surgeons, Edinburgh, Scotland; Member of the County Medical Society of New York, etc., etc. New York: The Truth Seeker Company. [No date.] Pp. viii, 432.

This little volume gives Dr. Hartmann's views as to the way God was created. It will not commend him (the author) to Presbyterian synods and general assemblies, but contains an immense fund of information concerning the universe and other matters. It is illustrated by a curious "map of the intellectual faculties" and their distribution over the convolutions, which will be very instructive to students of modern views of localization. There is also a useful "map of the deluge and Garden of Eden" at the other end of the book. The thoroughness of the author's physiological training will be seen by a glance at his account of the "third nerve, motor acuti," the "hyperglossal" nerve, and of the way in which "the spinal accessory supplies some muscles of the back" (p. 236), and also of "the centre through which the vægus (pneumogastric) influences the secretions of pancreatic juice, and possibly of the other digestive juices" (p. 237). The regenerative character of his learning is also indicated on p. 304 from which we quote two sentences: "Vegetable chemical compounds, organic substances, can be produced only under certain vitalizing conditions and influences," "wherever upon the surface of this earth, the sun's rays produce a certain degree of heat, temperature, CHO may combine and evolve vegetable life."

Occasionally poetry is introduced. As it is mostly without quotation marks, we may be permitted to infer that the exhausting and extended reading of our author has not altogether prevented occasional dalliance with the muse. One sample must suffice:

> "No soul you will ever find,
> Trust not in its life or death;
> Education makes the mind;
> Oxygen is the life's breath."

Medical Pocket-Atlases. — Obstetrics: Part I, Labor. Delineated in 98 plates. By O. SCHÆFFER, M.D., Assistant at the University Frauen-Klinic in Munich. Translated and published under the supervision of J. CLIFTON EDGAR, M.D., Adjunct Professor of Obstetrics in the University of the City of New York, etc. New York: L. Hydel. 1893.

This little volume is the first of a proposed series of medical pocket-atlases, which are "intended to illustrate clearly and succinctly the entire field of medicine." In this atlas Dr. Schæffer has aimed to represent "the various obstetric presentations step by step in a continuous series of diagrams, which, though partly schematic, show the delivery of the child and placenta in a scientifically accurate way." The text, which is intentionally brief, is printed under each figure. There are seven folding sheets, each containing fourteen figures; the size of the book is convenient for the pocket.

Plate I is devoted to the first vertex position (O. L. A.) and its natural development; Plate II, to the varieties of the first vertex position and their normal development. Plate III treats the first face position, its natural and its operative development by version. In this latter operation Schæffer's figure makes the operator bring down both feet; we believe it is better practice to withdraw only one foot in podalic version, leaving one leg to protect the funis from pressure during the extraction. Figure 42 in this plate shows admirably the proper method of manual extraction of the placenta.

Plate IV portrays the first oblique position (transverse presentation) and its natural development by spontaneous version and by spontaneous evolution; and Plate V, the first breech position (S. L. A.), its natural and its operative development by extraction. Figure 64 makes the operator prefer the posterior groin for digital traction: the anterior buttock is almost invariably the lower and more accessible. Figures 69 and 70 picture the introduction of the operator's finger into the child's mouth in the extraction of the after-coming head: we think it is better practice to obtain, when possible, and it generally is possible, a *point d'appui* on the upper jaw, as there is always some risk of injury, from traction on the lower jaw, either to the jaw itself or to the soft parts in the mouth.

Plate VI figures various versions in oblique presentations, development of the incomplete footling presentation, and corrections of cephalic presentations. Many useful obstetric manœuvres are portrayed in this plate.

Plate VII is devoted to the application of forceps: some of the figures are excellent; but others will be less valuable to American students, as the nomenclature employed is not always that with which they are familiar.

In a work of this character the labor of the translator is inconsiderable. Although we have not the German edition at hand, we have no question that Dr. Edgar has performed his task with accuracy and success. The printing was evidently done in Germany, or, if in this country, by printers unfamiliar with English. Doubtless the occasional typographical errors will be corrected in subsequent editions. We believe the atlas will be found very useful by medical students, and we welcome it as a useful addition to the teacher's armamentarium.

Nursing: Its Principles and Practice. For Hospital and Private Use. By ISABEL ADAMS HAMPTON. Illustrated, pp. 475. Philadelphia: W. B. Saunders. 1893.

This book, written by the Superintendent of Nurses and Principal of the Training School for Nurses, Johns Hopkins Hospital, shows wide and thorough acquaintance with the details of institutional nursing and instruction. Much space is given to the methods of carrying on the nursing in a large hospital and to the best arrangement of the studies of the nurses. It will prove of especial use in arranging the work in the many small hospitals now being established. For a nurse in private practice it is less useful though it contains many useful facts and hints. There is a good deal of theory and practice of medicine in the book and a few good, though rather unnecessary, illustrations.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, SEPTEMBER 21, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

IMPROVEMENTS IN THE REGISTRATION OF CAUSES OF DEATH.

A COMMITTEE of the British House of Commons was appointed in March, 1893, "to inquire into the sufficiency of the existing law as to the disposal of the dead, for securing an accurate record of the causes of death in all cases, and especially for detecting them where death may have been due to poison, violence, or criminal neglect."

This Committee has held twenty-one sessions, has taken much evidence, and has made its report. This report, dated September 1, 1893, shows that there are still many defects in the registration laws of Great Britain, the class of deaths to which these defects refer being mainly those which are due to violence or to suspicious causes.

A prominent principle is brought out in this report, which is probably true everywhere, though not always in the striking degree which prevails in the crowded cities of England and Scotland. It is expressed in the following quotation: "The percentage of uncertified deaths is at its minimum at the period of life when men and women are self-supporting, when their lives are economically most valuable as bread-winners, namely, between twenty and forty, and that it increases on each side of that age-period precisely as childhood or old age renders the deceased, as a class, a burden on their friends." The percentage of uncertified deaths in England is at present about 2.7 per cent. of the total mortality, and in Scotland is as high as 5.8 per cent., and in some small districts much higher.

The coroner's system comes in for a share of criticism in this inquiry, and as usual proves to be sadly wanting, as compared with the systems of investigation in use in most Continental countries as well as in Massachusetts.

The Committee expresses itself in no doubtful language with reference to the need of reform in the matter of uncertified deaths. "We are much impressed," they say, "with the serious possibilities implied in a system which permits death and burial to take place without the production of satisfactory medical evidence of the cause of death. It is a most important duty of society to guard its members against foul play, and it appears to your Committee, that, as far as may be, it should be made impossible for any person to disappear from his place in the community without any satisfactory evidence being obtained of the cause of his disappearance. Your Committee, fortified with the weighty opinions of the witnesses who have appeared before them, have arrived at the conclusion that uncertified deaths, should, as a class, cease to exist, and that means should be devised whereby a medical certificate should be obtained in every case not certified by a registered medical practitioner in attendance."

In Paris and in other large French cities, a "Médecin Vérificateur" views every dead body, and an order for burial cannot be given till his report is made. If he finds the cause of death to be violent, suspicious or doubtful, he reports the case to the Mairie, who orders an official examination through the Procureur de la République. The proceeding in Germany is also of a like nature.

The Committee suggested, as an improvement in this direction, that medical officers should be appointed, who should investigate all causes of death which are not certified by a medical practitioner in attendance. It was also their opinion that this duty should devolve upon the medical officer of health of each district.

The Board of Health of Boston has taken the commendable course of requiring all cases of death from doubtful or unknown causes to be investigated by a competent physician; if found to be due to violence, such cases are referred to the medical examiner for further investigation. In its report for 1892 it appears that 557 deaths were thus investigated by the Board, and their causes determined. The ends of justice would be much better served if the Board of Health of every city and large town should follow the same example. A statute providing for such action would prove a useful amendment to the existing law.

Prominence is given to the fact that the true cause of death is often concealed, because the attending physician is tempted to defer to the feelings of the relatives where death has resulted from some cause which might reflect discredit upon the family, as in cases of death from delirium tremens, syphilis, insanity, etc. Hence some other cause is assigned. This disadvantage may be partially avoided by requiring that the certificate of death shall not be handed to the representatives of the deceased, but sent directly to the registrar.

The report shows that pit-burial is not uncommon in the densely crowded old cities of England; it being a common practice to dig large pits in which from fifty to sixty bodies are buried, such pits remaining open from four to six weeks, until they are filled.

With reference to other modes of burial, the Com-

mittee alludes to the subject of cremation, and states as the only objection, the liability to destruction of the evidence as to the cause of death in case of poisoning. As a remedy it is suggested in the report, that with the careful precautions adopted by the Cremation Society, there is little probability that cases of crime would escape detection, but as these precautions are voluntary, they should be made the subject of legislation.

With reference to the undertaker's fad of embalming all dead bodies, the Committee suggests that since such process introduces poisonous substances into the body and thus may hide the evidence which is essential to legal investigation, it should, therefore, be made necessary to obtain proper authority to deal with a dead body in this manner. An attempt to secure such a law was made before the Massachusetts Legislature a year ago but it was defeated.

The following is a summary of the recommendations of the Committee:

(1) That in no case should a death be registered without production of a certificate of the cause of death signed by a registered medical practitioner, or by a coroner after inquest, or in Scotland by a procurator-fiscal.

(2) That in each sanitary district a registered medical practitioner should be appointed as public medical certifier of the cause of death in cases in which a certificate from a medical practitioner in attendance is not forthcoming.

(3) That a medical practitioner in attendance should be required, before giving a certificate of death, to personally inspect the body, but if, on the ground of distance or for other sufficient reason, he is unable to make this inspection himself he should obtain and attach to the certificate of the cause of death a certificate signed by two persons, neighbors of the deceased, verifying the fact of death.

(4) That medical practitioners should be required to send certificates of death to the registrar, instead of handing them to the representatives of the deceased.

(5) That a form of certificate of death should be prescribed, and that in giving a certificate medical practitioners should be required to use such form.

(6) That it should be made a penal offence to bury or otherwise dispose of a body, except in time of epidemic, without an order from the registrar stating the place and mode of disposal, which order, after it has been acted upon, should be returned to the registrar who issued it.

(7) That it should be made an offence to retain a dead body unburied or otherwise legally disposed of beyond a period not exceeding eight days, except by permission of a magistrate.

(8) That the practice of burial in pits or common graves should be discontinued.

(9) That still-births which have the stage of development of seven months should be registered upon the certificate of a registered medical practitioner, and that it should not be permitted to bury or otherwise dispose of the still-birth until an order for burial has been issued by the registrar.

(10) That, subject always to the discretion of the Crown Office, the result of precognitions taken by the procurators-fiscal in Scotland, or the precognitions themselves, should be communicated to the representatives of the deceased when application is made for the same.

THE PHARMACOPŒIA OF 1890.

It is a pleasure, on account of its excellence, to announce to the readers of the Journal the appearance of the new Pharmacopœia, which will be official on January 1, 1894, and this seventh decennial edition puts the medical profession again under obligation to the Committee on Revision. It differs from that of 1880 in various ways. Ninety articles, formerly official, have been wisely omitted and among these may be mentioned the abstracts, preparations that have never justified themselves. Nearly as many articles have been added to the official list and the Committee have shown much discrimination in the selection of them. The following illustrate the character of their choice: cocaine hydrochlorate, strophanthus, vegetable cathartic pills, which cannot produce the serious symptoms sometimes following the continued use of compound cathartic pills, a ten-volume solution of hydrogen peroxide, here called hydrogen dioxide, the strength of which is so determined that this solution is the equivalent of a twenty volume solution as it is at present estimated in the United States, suppositories of glycerine, salts of strontium.

The Committee have adopted the metric system, using in most cases weights for solids and measures for liquids; they did not see fit to adopt the newly-proposed spellings, such as bromin and iodid for bromine and iodide; but they have introduced a change in chemical nomenclature, already widely accepted, in the designation of such chemical compounds as salts and oxides; by this change chloride of sodium becomes sodium chloride, nitrate of silver, silver nitrate. Likewise a number of alterations have been made in the official Latin titles; if we wish to be correct, we must write, after January 1st, opium deodoratum instead of denarcotisatum; the old term "mixtura" has been discarded and the new term "emulsum" substituted therefor in certain liquid preparations, which are properly speaking emulsions. Mixtura asafœtidæ, for instance, will therefore read emulsum asafœtidæ.

Certain changes have been made in the strength of the pharmaceutical articles and the more important of these have been tabulated so that their differing strengths in the present and the preceding Pharmacopœia may be compared at a glance. By the new method the stronger liquid preparations of opium are required to yield, on being assayed, 1.3 per cent. to 1.5 per cent. of crystallized morphine. In calx chlorata 35 per cent. instead of 25 per cent. of available chlorine is required, in liquor sodæ chloratæ 2.6 per cent. instead of 2 per cent. is required.

The tables of atomic weights, of thermometric equivalents, etc., are of especial use to pharmacists; unfortunately the very useful table of solubilities which the Pharmacopœia of 1880 contained is here omitted.

Substances which can be produced only under a patented process or which are protected by proprietary rights are not mentioned.

The profession will be repaid for familiarizing themselves with this revision.

MISDIRECTED SATIRE.

IT seems that Mark Twain has recently come across a Dictionary of Medicine published about one-hundred and fifty years ago, and has proceeded to make fun of it in his characteristic style. This has aroused the indignation of an English contemporary, who considers that antique medicine is too serious a subject to be trifled with. Our contemporary allows that Mark Twain succeeds in finding prescriptions in the work, which, "read by the light of recent clinical experience, may be pronounced as tentative, crude, and even risky"; but believes that he has erred in making "no allowance for the comparatively immature physiology and pathology of the days preceding biological chemistry and the microscope and the thousand and one aids to diagnosis elaborated in the intervening century and a half of time, which have strengthened the hands of men far inferior in native ability to the author of the literary fossil referred to."

The author suspects that Mark Twain has heard of Bonetus only in this dictionary, and grieves that his treatment for a pain in the head, namely, local bloodletting, should be the occasion of his misdirected and ill-inspired ridicule. "It may be news to Mark Twain to hear that Théophile Bonet (in Latin, Bonetus) was for his time an exceedingly able and accomplished physician, the medical adviser of the then Prince of Neufchâtel, and that he has an honourable niche in every great History of Medicine, including the quite accessible article in the 'Encyclopædia Britannica,' and by every philosophical student of scientific progress is regarded as a link, and a not inconsiderable link, in the chain of medical evolution. Nothing but the implication that his readers were as unenlightened as himself could have warranted the American humorist in making fun of a well-known figure in the gallery of medical portraits." Mark Twain is warned that he "could have found much more legitimate targets for his undoubted command of the risible susceptibilities of his readers in the country of his birth than any fossil which he has succeeded in extracting from the once useful but long superseded Dictionary of Medicine at which he levels so much misdirected satire."

Although the wit of Mark Twain has often amused the British public, this looks as if he were not entirely understood in England. We doubt whether any American would expect him to make allowance for the "comparatively immature physiology and pathology of the days preceding biological chemistry," or expect him to read up an article in the "Encyclopædia Britannica," on Bonetus, before criticising his prescriptions.

MEDICAL NOTES.

CHOLERA. — The cholera throughout the Mediterranean countries has declined during the last week. Russian statistics give no increase in the number of cases in St. Petersburg or Moscow, and point to a diminution in the number of cases through the provinces, but the official reports are not to be relied on. Roumania and the lower Austrian districts have no material change. In Antwerp there have been no new cases reported, but the disease appeared in Hamburg this week with a total of twelve cases up to date. Naturally considerable alarm has been felt by the people. In England another death has occurred in Hull, one in Grimsby and two cases have been reported from London. No new cases have occurred in New York or Jersey City and the quarantine against the port which was declared by Portugal has been removed. The disease is said to have appeared in Rio Janeiro, but no confirmation of the report has been received.

SMALL-POX. — Four new cases of small-pox have occurred in New York, and five cases in Brooklyn. The new cases all occurred in a tenement-house occupied by about fifty people.

IMMIGRATION VIA CANADA. — The request of the United States Government to be allowed to inspect all immigrants landing at Canadian ports, with a view to preventing the introduction of contagious diseases has been emphatically refused by the Canadian authorities. As the number of immigrants entering this country through Canadian ports is several thousand a month, the danger of infection is by no means slight; and a quarantine inspection of all trains coming from Canada is as important as that at our own seaports, though much more difficult.

PASSAGE OF A THERMOMETER THROUGH THE ALIMENTARY CANAL. — The swallowing of a clinical thermometer by an insane patient at Besançon recently was not without its usefulness. The thermometer, a self-registering one, was entirely of glass and 113 mm. long. No disturbance was noticed, and nine days later it was passed at the anus. The scale registered a maximum temperature of 38.7° Centigrade, but a subsequent verification of the instrument reduced this to 38.1°. The axillary temperature which had been taken twice a day during the passage of the thermometer was never higher than 37.2°.

RHINOCEROS' URINE IN HINDU MEDICINE. — Rhinoceros' urine is a much approved remedy among Hindu physicians for chronic fevers and splenic enlargements and the Calcutta Zoölogical Garden derives so considerable a revenue each year from the sale of the water passed by its rhinoceroses, that men are detailed to collect the urine as it is passed. It is a very pale urine with a specific gravity of 1,000, slightly alkaline reaction, abundant phosphates and free ammonia.

NEW ENGLAND.

HOSPITAL BEQUESTS. — Among the bequests in the will of the late Margaret Capen is one of five thousand dollars to the New England Hospital for Women and Children, and one of fifteen thousand to the Perkins Institution for the Blind.

FIVE UNBROKEN GENERATIONS. — There is in this city a household with five full generations all living. The descent is by the female line in each case so that

there are the great-great grandfather and mother both over ninety but well and active, the great grandmother and her husband, the grandmother and her husband, the mother and father and the daughter, nearly two years old.

NEW YORK.

The Public Schools. — On September 8th the public schools were reopened after the summer vacation, and the names of 162,000 children were registered. Before admission to the schools each child must present a certificate of vaccination, and since the day of opening the health authorities have been vaccinating pupils at the rate of three hundred a day. Four new school buildings have been opened this season, and the sanitary condition of the older school-houses is said to have been considerably improved. A number of new features have been introduced in the school system. Among them there is a more general and thorough course of instruction in physical culture, and Dr. J. Gardner Smith is to have the direction of this department. To many of the primary schools the kindergarten system will also be added.

The Westchester Hospital. — An excellent free hospital has recently been opened at Westchester, the first institution of the kind in that town, and the citizens have been very generous in offering donations of money and supplies. On the consulting staff of the hospital are the following New York medical men: Physicians, Drs. J. E. Ellis, Frank W. Jackson and W. B. James; Surgeons, Drs. Joseph B. Bissell, Arnold Naudain and Z. E. Lewis; Gynæcologist, Dr. Clement Cleveland; Pathologist, Dr. J. S. Thatcher.

Miscellany.

EARLY NOCTURNAL PAIN IN SYPHILITIC SPINAL DISEASE.

Charcot[1] calls attention to a symptom of syphilitic disease of the spinal cord which is of value in localizing the seat of the lesion in its early stage. The occurrence of nocturnal pains in the cervico-dorsal or dorso-lumbar regions of the spine at a regular hour, usually in the latter part of the night, is a marked symptom of early syphilitic spinal meningitis. The duration is usually a few weeks, and the pain is a precursor of the paralytic phenomena by several weeks. Careful observation of this symptom may be of great importance in treatment of the patient.

DOCTOR LAILLER.

The death of Dr. Lailler — "Père Lailler" as he was fondly called by his fellow townsmen — which occured a fortnight ago in the little village of the Eure, closed the career of a most interesting man. Few probably have heard of his name, not even those who owe indirectly the most to his ingenuity.

Shortly after the cholera epidemic of 1848 when Lailler had shown the greatest daring in his work among the sick came the incident which marked the beginning of his valuable labors. At that time the only portrayal of skin diseases was by hand-colored drawings. Passing by the Opera one day, Lailler met an Italian lad selling wax fruits. At once a brilliant idea came to the enthusiastic physician, "Come to-morrow to the Hospital St. Louis, and I will give you a hundred sous to model a hand." The first attempt of the young modeller was a failure; but the physician saw the possibilities of his pupil, and taking him into his service educated him in this new line of work.

Such was the beginning of the great dermatological museum of the Hospital Saint Louis to which Lailler devoted all his energies until its establishment was accomplished, and he saw it the first and greatest of its kind, with its models copied for many foreign museums. Medicine was to him not a road even for honest fame, but a work of priestly sacrifice and well doing, and he refused to allow his name to be given to this museum he had founded.

The Commune found him at his post; and when the insurgents driven by the army of Versailles reached the walls of Saint Louis where they wished to make their last stand, Lailler prevented the Director from opening the gates to them and boldly appealing to the mob to spare the sick and wounded whom he was caring for, the risk of massacre in the fight, persuaded them to keep on as far as Père-la-Chaise. A few minutes later the men of the Versailles army met the same brave opposition. On seeing the decoration of the Legion of Honor on the officer's coat, Lailler tore his own cross off and threw it to the ground, refusing to wear a decoration which was also borne by men who attacked hospitals. In all the after days of peace he kept his word, and was never seen again with the red ribbon on his coat.

On the establishment of peace, this earnest opponent of the empire, who had given time and money for his cause, retired from public life to a quietness which was almost oblivion, even his friends scarce hearing of his death.

A CASE OF WASP STING WITH RAPID CONSTITUTIONAL SYMPTOMS.

A correspondent sends to the *British Medical Journal* the following account of a case of wasp-sting:

On July 18th, at 5.30 P. M. I was called to see Mr. A., who, less than an hour previously, had been stung on the nape of the neck by a wasp. To soothe the pain, which was somewhat severe, he applied bicarbonate of soda. Some fifteen minutes later he felt his eyes watering but not painful. Getting worse he looked at himself in the glass and found his face somewhat swollen and his eyes bloodshot. He felt his body getting itchy, and taking off his clothes found his chest and abdomen covered with a red rash. Half an hour after being stung his condition became aggravated, his eyes watered much, the face was so swollen that he could scarcely see, and he noticed cyanosis of the lips and round the eyes. His wife also remarked how swollen and blue his face was, and this caused them to send for medical assistance. When I arrived the following was his condition: On the nape of the neck and to the right side was a white well-elevated wheal, ovoid in shape and about almond size, where the wasp had stung him. The face was flushed and showed

[1] Rev. de Clin. et de Thér., June 28, 1893.

slight cyanosis, but almost all traces of the previous swelling had disappeared. The conjunctivæ were markedly congested and the flow of tears increased, but the pupils were of moderate size and otherwise normal. The neck and whole trunk, back and front, were covered with a deep scarlatinal-like rash, showing a slight mottling, disappearing on pressure but at once returning. The left palm was likewise reddened but the limbs were otherwise quite free from any rash. All the parts affected with this rash — trunk and palm of left hand — had been very itchy, but this was now passing off. The left axilla was swollen but not tender to pressure, and the patient himself remarked that it was curious the left armpit should be swollen and the left palm red when he had been stung on the right side of the neck. The left hand had not been stung and showed no wound. The temperature was 98° F., pulse 60, regular and of medium tension. The patient, beyond feeling alarmed at his condition, was conscious of no other symptoms. Four hours later the rash began to fade, and next morning he was quite well.

THE MENTAL SYMPTOMS OF MYXŒDEMA.

THE mental disturbances usually seen in cases of myxœdema are those of lessened activity and a gradual deterioration of the intellectual powers. There are cases, however, in which mental symptoms of a severer and more active character occur, which may amount to actual insanity. At the recent meeting of the British Medical Association, Dr. Clouston reported nine cases of myxœdema, one man and eight women, who had been sent to an asylum on account of their insanity.[1]

The mental symptoms of these cases differed greatly. One case had the symptoms of suicidal melancholia, one was simple melancholia, and the other seven were classified as mania on their first admission. Two of them after their discharge were readmitted as cases of melancholia. The symptoms of the mania differed greatly in different cases and in the same case at different times, from general simple, mental exaltation, systematized delusions of grandeur, to inability to understand simple questions and delirious incoherence of speech. They had all begun by slowness of mental action and lethargy; most of them had then been somewhat depressed, next there had appeared irritability, morbid suspicion, and loss of self-control. Under the discipline and life in the asylum four of the seven earlier cases had improved so much as to have been discharged as "recovered," that is, no longer technically insane. Two of these had relapsed and were readmitted. The cases that lasted long showed signs of general enfeeblement of mind after the early acute symptoms had passed off. Before death, a very striking hebetude and mental torpor had come on. Three of the cases had died in the asylum. The two last cases admitted had been treated with thyroid extract, and had made satisfactory recoveries, both from the myxœdema and the insanity; one of them had died at home on the tenth day after discharge, from syncope, after overexertion and whiskey. An analysis of the symptoms in the nine cases showed that in seven of them sensation was blunted, the memory was affected in eight, the normal power of attention was diminished in all the cases, with an accentuation of the attention on disagreeable things and on delusions in six cases. There were hallucinations of the senses of sight, hearing and smell in four cases. In every case the affective faculty was abnormal, natural affection being diminished in all, and, in most, hatred set up instead of love to near relations. There was depressed emotion in five cases and exaltation of feeling in three cases. The intellect was affected in all by slowness of working and by delusions, mostly of suspicion, in six cases. Volition and the originating faculty was impaired in some way or other in all the cases. The effect of the thyroid treatment was manifest within the first month of treatment in mental improvement. One of the cases treated had been for one year markedly insane, the other for three years. The myxœdema had existed for over five years in both. Both were enfeebled in mental power, this having succeeded exaltation, morbid suspicions and excitement at the beginning of the attacks of insanity. One case was cured in four months, and the other in six. A slow intermittent treatment by small doses — one-sixteenth of a thyroid twice a week — was found to be, on the whole, the best. The mental improvement went on *pari passu* with the disappearance of the bodily symptoms until the general enfeeblement disappeared; the general sense of well-being became normal, the memory improved, the delusions disappeared, the affections returned, and the volition and originating power became gradually normal.

[1] British Medical Journal, August 26, 1893.

THERAPEUTIC NOTES.

RECTAL AND GASTRIC ABSORPTION. — Lemanski and Main have reported to the Therapeutic Society their experiments upon the comparative absorbing powers of the rectum and stomach for certain drugs. Iodide of potash, given by rectum, appeared in the saliva at the end of ten minutes while the same amount given by the mouth required fifteen for its elimination to begin. In the same way salicylate of soda appeared in the urine ten minutes sooner when given by the rectum than when taken by mouth. Methyl-blue, on the other hand, was more than three times as long in appearing when given by enema. Salol requiring the action of pancreatic fluids for its decomposition was detected forty minutes after injection and thirty after ingestion. Turpentine was apparently not absorbed at all by the rectum as no violet odor was detected in the urine after enemata. As far as their experiments went, it seemed as if soluble drugs were more quickly absorbed from the rectum than from the stomach.

THYROID FEEDING IN PSORIASIS. — At the last meeting of the British Medical Association Dr. Byrom Bramwell read a paper on the influence of thyroid feeding on the nutrition of the skin, especially in cases of psoriasis. His attention had been drawn to the improvement of the skin in patients under thyroid treatment for myxœdema and hoping to aid the nutrition of the skin in psoriasis he made trial of this remedy in selected cases of long-standing psoriasis. To thoroughly test the treatment all other remedies were omitted and a small dose of the thyroid given daily. In all his cases a visible improvement occurred after a few days' administration. The inflammatory redness was lessened and there was considerable desquamation of cuticle over the affected parts. In one

patient the eruption grew worse, in two there was no benefit, but in every other instance there was marked and continued improvement. In one case only has there been a slight relapse. "All the patients who were thus treated had the disease in a chronic and obstinate form, and had been subjected to all kinds of ordinary treatment, but without success." Dr. Arthur Davies also reported independent observations on two cases of psoriasis which had improved very rapidly under thyroid treatment, one reaching a complete cure. The uncertainty of obtaining permanent results in treating psoriasis should restrain undue confidence in this new remedy, but the careful selection of cases and the exclusion of other treatment during the trial, lends force to Dr. Bramwell's report — and further trial will be watched with interest.

Correspondence.

LETTER FROM CHINA.

HANKOW, CHINA, June 17, 1893.

MR. EDITOR: — Six hundred miles from Shanghai, up the Yang tse at junction of Haar River, this city of some seven hundred thousand, is one of three, reminding one of the "New York-Brooklyn-Jersey City" *tripolis*. Hanyang forms the second member, adjoining Hankow; Wuchang the third, lies opposite, on the south side of the great river nearly a mile in width: it is the provincial capital, where thousands of aspirants for the mandarin dignity come to the scholastic examinations. This is indeed the tea city *par excellence*. Pictures of long ago take moving form, the traditional typical two "tea boxes" perambulate the fine foreign-made streets, supported on the shoulders of a placid-faced Oriental, with saucer-shaped hat.

More interesting perhaps to you than the language or the wonderful great tiger skins which cost only about sixty silver dollars, will be a short account of the medical and hospital arrangements here.

In connection with the Wesleyan Mission Dr. Hodge has a hospital accommodating thirty men and fifteen women. A room for "opiatics" would contain five. Several victims to abuse of the *papaver somnifera* have been treated. The general plan is tonics and nourishment, with occasional nervine sedatives. The consensus of many missionary physicians hereabouts is to the effect that excessive smoking is "very injurious" owing to the scanty vegetable diet of the people and the resulting lowered vital resistance.

The London Mission Hospital (near the settlement), in charge of Dr. Thomas Gillison, now undergoing repairs and enlargement, has beds for about fifty males and fifteen females. A daily average of fifty or more receive care in the out-patient department. These people smile when the surgeon asks them if they are not afraid that he will take out their eyes to be used for medicines or devilish rites; for such are the stories, with which the populace sometimes are incited against the doctors. I have myself seen the famous *Hunan* (a province) Chinese book with pictures showing how the eyes of children and breasts of women are being removed for poisons, medicines, etc. The Chinese text tells that the foreign devil does such things for selfish and wicked purposes. In commercial ports, however, where there is much intercourse with Europeans, such ideas are of less force. They dislike amputations from religious ideas, the body being thus multitated.

Women physicians are doing good work. "The Daughters of Charity," an Italian Roman Catholic Mission have been about twenty years in Hankow, though the present structures are of a few years more recent origin. A thousand Chinese are recipients of their loving ministrations; five hundred living outside, the remainder finding homes within the walls of the institution. These latter are of both sexes and all ages. Many of the small girls have been saved from a castaway's death, and here are practising profitable trades. Others grown older in this home are married from this haven.

In connection with the "Daughters of Charity" is an excellent hospital building of two stories, accommodating about one hundred Chinese, with rooms for ten or more foreigners. Dr. Begg, the physician, sees about sixty outdoor patients every week-day. Many of them will attribute a lame back, headache or pain to a blow received four or ten years before. The average mind is filled with witchcrafty superstition; this idea governs the location and outlook of buildings, the conduct of various enterprises, and ordinary life. There were many cases of dyspepsia and lying was not infrequent. An early sign of leprosy was a smoothing out of face wrinkles and lines in a man about thirty years of age. The doctor showed an amputation of *membrum virile* for *lupus*. He first cut the integument, and drew off the skin; then incised the corpora; the urethra, the last divided, formed a sort of apex to an irregular cone. When healed, the meatus would *not* be found at the bottom of a hole — often covered with skin — but quite on a level, or slightly projecting from the other tissues. The stump was rather less than an inch in length. The surgeon wished to remove the entire structure deep down with convexis; but the mother and consort of the man decided otherwise.

The examination season is drawing near, when it is wise for foreigners to keep away from the scenes of contest — such crowds of *patriots* there do congregate, — as a later day missionary of university education casually remarked.

F. B. STEPHENSON, M.D., *Surgeon U. S. N.*

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 9, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	758	359	26.26	10.14	18.07	.91	4.03
Chicago	1,438,000	—	—	—	—	—	—	—
Philadelphia	1,115,582	369	159	18.90	14.85	10.80	2.70	3.24
Brooklyn	978,394	—	—	—	—	—	—	—
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	214	90	24.91	13.16	16.92	.94	6.11
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	106	47	28.20	10.34	13.16	6.58	4.70
Cincinnati	305,000	84	32	14.28	14.28	7.14	—	4.76
Cleveland	200,000	87	43	33.33	9.52	23.80	3.57	3.57
Pittsburg	263,709	—	—	—	—	—	—	—
Milwaukee	250,000	108	70	38.64	.92	23.00	.92	11.96
Nashville	87,754	26	7	19.25	15.40	19.25	—	—
Charleston	65,165	32	9	15.65	15.65	6.26	3.13	—
Portland	40,000	13	2	7.69	30.76	7.69	—	—
Worcester	96,217	38	27	42.18	5.26	35.82	—	—
Fall River	87,411	44	32	60.29	2.27	54.48	4.54	—
Lowell	87,191	32	20	12.52	9.39	3.93	—	3.13
Cambridge	77,100	29	15	27.60	3.45	13.80	10.35	—
Lynn	62,656	17	13	29.40	—	17.64	—	—
Springfield	48,684	22	7	9.10	18.20	9.10	—	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	20	9	25.00	15.00	25.00	—	—
Holyoke	41,278	—	—	—	—	—	—	—
Salem	32,233	14	6	14.28	7.14	14.28	—	—
Brockton	32,140	7	4	14.28	14.28	14.28	—	—
Haverhill	31,396	10	6	40.00	—	40.00	—	—
Chelsea	30,264	10	5	30.00	—	10.00	—	—
Malden	29,394	10	3	30.00	10.00	30.00	—	—
Newton	27,556	11	5	—	9.09	—	—	—
Fitchburg	27,146	6	4	33.33	—	33.33	—	—
Taunton	26,972	16	7	37.50	18.75	37.50	—	—
Gloucester	26,688	9	4	—	11.11	—	—	—
Waltham	22,058	11	5	36.36	27.27	36.36	—	—
Quincy	19,642	6	3	33.33	16.66	16.66	—	—
Pittsfield	18,802	2	0	—	—	—	—	—
Everett	16,585	3	2	—	—	—	—	—
Northampton	16,331	—	—	—	—	—	—	—
Newburyport	14,073	3	1	—	—	—	—	—
Amesbury	10,920	6	4	50.00	16.66	33.33	—	—

Deaths reported 2,046: under five years of age 919: principal infectious diseases (small-pox, measles, diphtheria and croup,

diarrhœal diseases, whooping-cough, erysipelas and fevers), 558, diarrhœal diseases 377, consumption 240, acute lung diseases 136, diphtheria and croup 84, typhoid fever 37, cerebro-spinal meningitis 21, whooping-cough 17, scarlet fever 12, malarial fever 6, measles 2, small-pox 2.

From cerebro-spinal meningitis New York 10, Washington 3. Worcester 2, Cleveland, Lynn, Somerville, Chelsea, Quincy and Amesbury 1 each. From whooping-cough New York 7, Philadelphia 3, Cincinnati 2, Boston, Washington, Fall River, Cambridge and Chelsea 1 each. From scarlet fever Philadelphia 4, Milwaukee 3, New York, Boston, Cleveland, Lynn and Somerville 1 each. From malarial fever New York and Charleston 2 each, Philadelphia 1. From measles New York 2. From small-pox New York 2.

In the thirty-three greater towns of England and Wales with an estimated population of 10,327,846, for the week ending September 2d, the death-rate was 20.6. Deaths reported 4,075; acute diseases of the respiratory organs (London) 138, diarrhœa 677, diphtheria 73, whooping-cough 73, measles 63, fever 62, scarlet fever 48, small-pox (Bradford 4, West Ham 3, London 2, Birmingham 1) 10.

The death-rates ranged from 15.5 in Norwich to 31.5 in Hull; Birmingham 20.4, Bradford 23.8, Croydon 19.1, Halifax 18.2, Leicester 17.2, Liverpool 26.6, London 19.0, Manchester 23.2, Newcastle-on-Tyne 23.0, Nottingham 20.1, Sheffield 20.9, Sunderland 26.0.

METEOROLOGICAL RECORD,

For the week ending September 9, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S.. 3	29.95	58	68	47	72	58	65	W.	S.W.	6	10	C.	C.	
M.. 4	29.92	60	67	52	59	60	60	N.W.	W.	14	6	C.	C.	
T.. 5	29.87	66	80	51	73	70	72	S.W.	S.W.	6	9	C.	C.	
W. 6	30.02	64	70	59	72	52	62	W.	N.W.	12	9	O.	C.	
T.. 7	29.98	60	68	51	64	100	82	S.	N.W.	6	29	F.	R.	0.02
F.. 8	30.04	62	67	56	74	63	68	N.W.	N.W.	17	5	C.	C.	0.32
S.. 9	30.05	62	74	50	78	74	76	W.	S.W.	14	16	F.	C.	
☞	29.99		71	58			69							0.34

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 9, 1893, TO SEPTEMBER 15, 1893.

Leave of absence for one month, to take effect on or about October 1, 1893, is hereby granted LIEUT.-COL. J. V. D. MIDDLETON, deputy surgeon-general, U. S. A., with permission to apply for an extension of fifteen days.

FIRST-LIEUT. CHAMPE C. MCCULLOCH, JR., assistant surgeon, is relieved from duty at Fort Sam Houston, Texas, and ordered to Fort Ringgold, Texas, for duty, relieving CAPTAIN JAMES E. PILCHER, assistant surgeon.

CAPTAIN PILCHER, upon being relieved, ordered to Fort Niagara, New York, for duty, relieving CAPTAIN RUEBEN L. ROBERTSON, assistant surgeon.

CAPTAIN ROBERTSON, upon being relieved, ordered to Fort Omaha, Nebraska, for duty.

CAPTAIN LOUIS A. LAGARDE, assistant surgeon, will, upon the completion of his duties in connection with the World's Columbian Exposition, report in person to the commanding general, Department of the Colorado, Denver, Col., for duty as attending surgeon and examiner of recruits in that city.

FIRST-LIEUT. HENRY R. STILES, assistant surgeon, is relieved from duty at Fort Omaha, Nebraska, and will report in person to the commanding officer, Fort Meade, South Dakota, for duty at that post.

By direction of the Secretary of War, the leave of absence granted CAPTAIN CHARLES E. WOODRUFF, assistant surgeon, is extended four months.

The leave of absence granted CAPTAIN JUNIUS L. POWELL, assistant surgeon, is extended ten days.

Leave of absence for one month is hereby granted to MAJOR J. VAN R. HOFF, surgeon, U. S. A.

Leave of absence for one month, to take effect about the 5th inst., is granted COLONEL J. C. BAILY, assistant surgeon-general.

Leave of absence for one month, to take effect between the 25th inst., and the 5th proximo, is granted MAJOR CHARLES L. HEIZMANN, surgeon, Fort Douglas, Utah.

Leave of absence for one month is granted MAJOR DAVID L. HUNTINGTON, surgeon, U. S. A.

Leave of absence for two months, to take effect from August 25, 1893, is granted LIEUT.-COL. CHARLES R. GREENLEAF, deputy surgeon-general, U. S. A.

SOCIETY NOTICE.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.—The following business committee has been announced by the President of this Society, Dr. Herman Bendell, of Albany; Dr. Henry Flood, of Elmira; Dr. L. Bolton Bangs, of New York; Dr. Edward Clark, of Buffalo, to whom all communications regarding papers for the next meeting of the Society in February, 1894, may be addressed.

F. C. CURTIS, M.D., *Secretary*, Albany.

RECENT DEATHS.

LYMAN B. HOW, M.D., of Manchester, died at Hanover, N. H., September 15th, aged fifty-five years. He graduated from Dartmouth in 1860 and from the medical school in 1863. He was for twenty-five years professor of anatomy at Dartmouth and held the position until this year, when his failing health obliged him to give up work. He was a member of the American Academy of Medicine and at one time President of the New Hampshire Medical Society.

H. B. MILLARD, M.D., of New York, died in Paris, September 14th, of typhoid fever.

EDWIN COLT, M.D., died in Brooklyn, N. Y., September 15th, aged eighty-three years. He was one of the founders of the Eastern District Hospital and the Eastern District Industrial Home.

W. T. WHITE, M.D., died in New York, September 17th, aged sixty-four years. He was Recording Secretary of the Academy of Medicine for seven years, and one of the founders of the New York State Medical Association. He was also editor of "The Medical Register of New York, New Jersey and Connecticut" for fifteen years.

E. WARREN BEY, M.D., a well-known American physician of Paris, died in that city September 16th. He was in practice in Baltimore before the rebellion, served as surgeon in the Confederate Army, and was later a professor in the Baltimore Medical College. Subsequently he was offered a commission in the Egyptian Army, in which he rose to the rank of surgeon-general. Later he practised in Paris, where he spent the remainder of his life.

BOOKS AND PAMPHLETS RECEIVED.

Local Boards of Health in the State of New York. 1893.

Circumcision; its Advantages and how to Perform It. By M. Clifford, L.R.C.P., London, M R.C.S., England. 1893.

Experiences in Pelvic Surgery. Peritonitis from a Surgical Standpoint. The Technique and Management of Pelvic Surgical Cases. By A. V. L. Brokaw, M.D., St. Louis, Mo. Reprints. 1892-93.

Inguinal Hernia in the Male. Analysis of One Hundred and Thirty-three Cases of Hernia Operated Upon for the Purpose of Radical Cure. By Henry O. Marcy, A.M., M.D., LL.D., Boston, Mass. Reprint. 1893.

Medical Report of the Philadelphia Dispensary for Skin Diseases Covering a Period of Ten Years and Nine Months (February, 1880, to November, 1890). By the attending physician, Henry W. Stelwagon, M.D.

Traitement du Pied Bot Varus Equin par l'Ablation de la Plupart des Os du Tarse. De l'Emploi des Essences et Surtout de l'Essence de Cannelle ou Cinnamol Comme Topique en Chirurgie. Par le Dr. Just Lucas-Championnière. Extrait. 1893.

Twenty-ninth Report of the Trustees of the Boston City Hospital; with Report of the Superintendent, the Medical and Surgical Statistics, Rules for Admissions and Discharges, Prospectus of Training-School for Nurses, Rules for the Convalescent Home, etc., for the Year, February 1, 1892 to January 31, 1893.

Lecture.

LECTURES ON SURGERY.[1]

BY DAVID W. CHEEVER, M.D.,
Professor of Surgery in Harvard University.

XVI.

INJURIES OF THE SPINE.

It is hard to believe that there can be such a thing as simple concussion of the spine producing lasting consequences. Of course, the spine may be shaken up; but that it can be shaken up in such a way as to produce permanent injury, without positive lesion to other parts, seems difficult to believe. The spine is in a water-bed; floats; cannot swing much from side to side; it is in the midst of a bony column which is linked like a chain; and is not stiff. It is buried beneath a mass of strong muscles; lies in the centre of the body almost. You are surprised to see in the dissecting-room when you cut away the muscles of the back how far the spinal column is in toward the centre of the body. It is wonderfully protected from shocks and jars; so that the delicate nerve-tissue of the spinal cord itself can hardly be damaged very much unless the parts near it are broken in a certain way. Now it is surrounded by a copious blood-supply. The rachidian veins which are developed in and between the membranes are very numerous. If you look in Bourgery's plates of anatomy, which are rather highly-colored, but still pretty true to nature, you will find how extremely vascular the parts around the cord are. It is much more probable that a blow or accident, which happens to the spine, not severe enough to injure the bones or detach them, but severe enough to jar the parts, — it is much more probable that it should rupture some of these numerous dilated rachidian veins, than that it should shake up and lacerate the cord itself, floating in its water-bed as it is; so that it seems to me improbable that concussion of the spine, as such, amounts to much, unless it is also accompanied by the same sort of injuries that happen in the brain. We have seen that simple concussion of the brain was rare; that where any symptoms persist they are due to positive lesions; and those lesions we call contusion of the brain; we have little vessels ruptured and miliary extravasations. Now I believe, and I think pathology supports it, that injuries of the cord which are supposed to be concussions, but from which the patient does not promptly recover, are due to a positive lesion. That lesion generally is the rupture of a vessel and the subsequent symptoms produced by a clot. Now a clot between the membrane and the spinal cord must act very differently as regards compression from a clot in the cerebral cavity. In the first place, it will gravitate, and it trickles down between the membranes and perhaps lodges about the points of exit of some of the nerves and compresses local portions of the cord; and gives rise to local changes of nutrition or motion, or sensation, but not affecting the whole of the body below where the injury is received. That is the history of moderate injuries of the spine. Either they amount to nothing at all; or if they amount to anything, they are followed by local, limited paralysis, due to effusions of blood.

One will see, on the other hand, a good many people get shaken up in the back, who are lame, stiff, and are weak and incapacitated for a good while; and yet they do not have any local paralysis. How are such symptoms as that to be explained? Apparently the consequences of a very large number of these injuries are external to the spinal cavity itself; that is to say, they are about the ligaments of the vertebræ, the fasciæ, and the muscles around them. You can remember how fully these parts are supplied with ligaments; how many articulations there are; how many ligaments there must be to support them; how much the erector spinæ and other sets of muscles are made up of fascia. The amount of ligamentous tissue and fibrous tissue throughout the whole back is very much larger than in any other part of the body. Bruises, blows and sprains are extremely slow to recover from. We know that when we sprain the wrist or ankle, or twist some part, that the sprain is slower to be recovered from than a broken bone. Undoubtedly many of the cases of railroad concussion, so-called, are cases of sprains and ruptures of the ligamentous tissues of the back. These are slow to repair. The back remains stiff. A form of rheumatism sets in. Pains located there are hard to distinguish from pains located in the cord itself; and, if the patient is at all of a nervous temperament, a neuralgia is set up, or other symptoms due to what we call hysteria; and owing to the long series of aches, and pains, and disabilities, the observer is led to think that there must be an injury to the cord itself. Frequently there is nothing of the kind. We can test that in two ways. First, by the lapse of time; inasmuch as if the cord is injured, it will undoubtedly go on to further inflammatory and degenerative changes; and a few months will make the patient much worse, and show symptoms which will be decisive. We can test it in case it has gone on some months without any change one way or the other, by electrical tests; and see whether the contractile power of the muscles is diminished.

Most shakings up of the back are due to injuries outside of the cord. Those which are more severe produce hæmorrhages; and the hæmorrhages are positive lesions, and require time for their recovery; but they do finally get well. Finally, we have the extreme class of injuries where in the spinal column, the bones are injured; and where positive fracture, dislocation, compression, meningitis, softening of the cord, etc., follow.

The cases which are due to the effusion of blood into the spinal canal are pretty easily diagnosticated after a few days. The symptoms are localized, persistent, and they can hardly be mistaken. Partial paralysis of one arm, partial paralysis of one side of the neck, or any portion of the body indicates that certain nerves have been compressed, and compressed within the spinal cavity where they emerge, by a clot. This may be so extreme in some cases as to produce paraplegia. A man receives a severe blow in the small of the back. No evidence of fracture or dislocation occurs. The patient is apparently paralyzed below the pelvis and remains so; but after six or eight weeks begins to recover sensation and motion; and after some months recovers perfectly. Such a case is undoubtedly due to effusion of blood; compression of the cord occurs; afterwards it is absorbed, and finally gets well. The milder class of cases give rise to local paralyses; and when we find them we have reason to

[1] These are unwritten lectures printed from the stenographer's reports. Verbal corrections are made in revision, but no rhetorical changes. They were delivered to the third and fourth classes as part of the regular course.

give a good prognosis, after sufficient time has elapsed. It must be borne in mind, however, that recovery from this sort of injury is excessively slow. It is not to be measured by weeks, but by months; sometimes a year or two, before the patient gets the parts finally restored.

Now in sprains, bruises and twists of the ligaments about the back the patient is often benefited by having an immobilizing apparatus put on. He is better off to lie in bed, and have on a light plaster, and keep the parts perfectly still, just as we would treat a badly sprained ankle. Subsequent to that he needs light massage; frictions and liniments, and electricity, the continuous current, etc., until he finally recovers.

Fracture and Dislocation of the Spine. — Now we pass to the very serious class of cases called fracture and dislocation of the spine. They almost always go together. It is hard to conceive that the spine can be dislocated without fracture taking place. It is rare; and usually fracture and dislocation are combined.

The symptoms produced must be immediate. There cannot be any waiting for the formation of a clot of blood here. Whatever happens, happens at once. The patient receives his injury; is immediately paralyzed below the seat of the injury; and the amount of the paralysis depends on where the injury is. In the middle of the back he has paraplegia, and also begins to have phenomena of impaired respiration and digestion; and if still higher up, still more startling phenomena appear. Bear in mind that the most common place for the structure to give way is where the neck joins the body. We have here, just above the vertebra prominens, a movable part, the neck, attached to a comparatively immovable part: which comprises the thorax, ribs and sternum, and an injury received upon the back is transmitted above. Fractures and dislocations are most common above the vertebra prominens. If the injury occurs up by the atlas and axis, the odontoid process is thrown forward on the medulla, and instant death is the result; death I presume more rapid than from any other form of injury, except by an extremely strong electrical current.

Between the third and fourth cervical vertebræ come out the filaments which form the phrenic nerve, which supplies the diaphragm with its pumping power in carrying on respiration. If fracture involves that nerve death is very speedy. If, as is frequently the case, fracture and dislocation take place about the fourth and fifth, fifth and sixth, or sixth and seventh vertebræ, then we have a very curious class of phenomena. The patient is paralyzed below the nipples. The chest is fixed. The inspiratory power of the serratus and intercostals is wholly lost. The patient can breathe only with the uninjured fibres of the phrenic nerve; and respiration has to be purely diaphragmatic. The chest does not rise in respiration. He lies on the back, incapable of moving, with the chest as fixed as in a marble statue. He breathes, however, fairly well. There is no suffering. The patient regains consciousness to a perfect degree. He cannot believe he is so seriously hurt; cannot understand that he is fatally hurt. He is sure to die; and in about thirty-six hours, sometimes forty-eight. Death is bound to occur from two causes: one is the compression on the diaphragm from the accumulation of gas in the paralyzed bowels; gas accumulates and is not passed on, fills up the abdomen, enormous distension takes place, the diaphragm is pressed up against the lungs, the lungs cannot expand, and are slowly compressed from the force underneath. Meanwhile another change takes place in the lungs themselves, which is still more dangerous, that is that the elastic power of the bronchi to expel mucus is wholly lost, and the lungs fill up with the secretions of the bronchial tubes. The patient is unable to cough, or expectorate. Between compression below and filling up above, at about the end of twenty-four hours he usually begins to be dull and cyanotic, and his finger-nails to grow blue; and he grows a little colder; becomes stupid, and gradually dies by slow suffocation; by a merciful form of death, since he is rendered unconscious.

We recognize the injury by these terrible phenomena when we see the patient. We can hold out but very little hope when the injury has been so high up that the respiratory power of the intercostals and serratus is lost. The patient breathes wholly with his diaphragm; is holding on to life by a very feeble thread; and he is almost sure to die in the way I have described.

If the injury occurs a little lower down he breathes better, but he is paralyzed. A little lower down, and he has no disturbance of the heart or lungs; has paralysis of the functions of the rectum and bladder, and paraplegia, and lives indefinitely. The broken backs and dislocated backs, in the middle of the dorsal region, live sometimes months or several years; once in a while recover, but very rarely.

The most important point for us to consider is whether we can do anything in these cases. The symptoms are so marked that we cannot help making a diagnosis; and we are occasionally assisted in the diagnosis, but not always, by an evident distortion in the line of the spine. In the neck it is not very easily recognized, however. The muscles are thrown into tension. The neck may be set back or forward a little; but it is difficult to feel displaced vertebræ in the neck, often. We frequently may be deceived as to the gravity of the injury, at first, by the fact that feeling the point of injury we find crepitus and broken bone. That usually means nothing at all; means a spinous process broken off; but it is the occurrence of all these symptoms of paralysis at once, with or without distortion, which indicate what has taken place.

Nature can do very little. The question is whether man can do anything to help. The most tempting field would seem to be to cut down upon the part; to use antiseptic precautions; saw out and trephine the laminæ of the vertebræ; remove depressed fragments; restore the cord to its natural position and circulation just as we do the brain when a bone is driven in upon it; and occasional instances of cure have resulted; but unfortunately they are very rare; and the reason is this: when this dislocation and fracture of the spinal column takes place the bodies jump over each other, and compression of the cord is almost always on the anterior portion, where it is out of reach of the surgeon. He may uncover the cord, meanwhile the vertebræ are locked over each other in front, and compression is still going on in front. I do not say it is not justifiable to make these attempts sometimes; but the latest statistics I have seen seem to show, on the whole, that up to this date, the percentage of recoveries was better in cases that were not interfered with, than in cases that were. The encouragement to interfere; to trephine the spine is very small. If we cut away considerable, we may relieve the symptoms; but the

patient will be, in the future, dependent on an apparatus to hold up his head.

Is there anything else we can do? Efforts have been made with occasional success to pull the fractured and dislocated vertebræ into place by traction; and once in a while, there has been a brilliant case; just as you read, once in a while, of that romantic and typical case, where a man has a piece of bone driven into the brain while in the midst of a conversation; loses consciousness; the bone is removed, and he rouses up and resumes conversation where he had left off; so you read occasionally of cases where reduction of dislocated vertebræ has been accomplished. It is a fair thing to try. How shall it be tried? The most efficient way is to suspend the patient in a tripod just as if about to put on Sayre's plaster-jacket for caries of the spine. The objection to the suspension is that the agony inflicted on the patient, and the constitutional symptoms produced, are very severe. The patient can hardly undergo it without ether; and while he is etherized and hung up, extreme care has to be taken lest he stop breathing, and die in the apparatus. In the child, young person, person not weighing very heavily, it is fair to try it; but in the heavy man, the chances of inflicting terrible suffering, and perhaps killing the patient, are something. On the other hand, it is claimed that efficient extension and counter-extension can be made with the body in the horizontal position, if you have plenty of assistants, and the body arranged on an angle; so that you can draw both ways, and draw the vertebra down into place.

We may trephine with a very limited chance of success and of recovery, probably followed by inability to walk, or move. We may extend by the tripod if the patient is not too heavy; we may extend more mercifully by doing it horizontally.

There remains only one other method of treatment, which should be applied to all cases, and can do no harm, and often does a good deal of good. After you have done what you can to draw down the parts; namely, to immobilize the spine; and that is done best by the plaster apparatus; the patient can be encased in plaster, and kept on a bed. One or two little precautions are very valuable. Turn the patient over often if you can, for otherwise he is sure to have a bed-sore. In the plaster-jacket you can turn him over; and it is a part of the nurse's business to turn him at least twice a day. Be very careful of the subsequent care of the bladder. Many of these patients die of subsequent cystitis; and if you can preserve the catheters and catheterization from sepsis, you may avert cystitis for a very long while.

Some of these patients live for months or years; and some of them waste away and die from affections of the bladder, and degeneration of the kidneys, and other organs.

INJURIES OF NERVES, MUSCLES, BURSÆ, ETC.

You will be at a loss sometimes perhaps to explain why it is that a moderate blow, from which the consequent bruising, which appears under the skin, has long since passed off, remains so painful and disables the parts so much. That is the case where a nerve has been bruised, and where the inflammation in its sheath cannot show outside through the skin and tissues, and shows only in its effects.

The effect is long-continued pain, lameness and inability to use the part. The treatment is strictly local. In the first place, the limb must be put at rest on a splint. The bruised nerve at first must be treated by laudanum fomentations, and later by more active treatment. In the later stages the application of iodine, or a blister, does a great deal of good; and finally the trouble subsides, after a good while.

When an effusion has taken place in the sheath of the nerve, and it becomes compressed; or when a nerve is wounded and its transmission of nervous influence is impaired, then some other phenomena come on which are characteristic, that is, reddening, glazing and blistering of the skin, especially on the tips of the fingers, along the inside of the fingers, on the palm of the hand. In these patients you will find not only the hand cooler than natural; less sensitive than natural to the ordinary touch, but also the skin vesicating, rubbing off, the knuckles frequently of a bright cranberry color; and the part excessively painful, and very easily affected by cold. This peculiar condition of the skin is a pretty good diagnostic mark of a nerve injury.

In these cases rest on a splint, opiates, local applications, time, etc., will bring the part round in a very large proportion of cases so that it may recover. It is known, also, very well that nerves that are cut have recovered their function after a certain time; that is, nerves of moderate size. It is one of the commonest observations that the branches of the facial on the face, cut so frequently in small operations about the face, entail at the time a great deal of paralysis, but it is not a permanent one. It is finally recovered from. This takes a long while, — four, six, eight months. Even the smallest growth or wen, anything of that kind, cannot be cut from out the cheek, from the side of the face or about the jaw, without cutting off some half-a-dozen or more filaments of the facial nerve. The muscles of expression of the face are so minute, and the changes which they undergo from want of innervation are so marked, that even these little incisions, destroying a few branches of the nerve, will give rise to a visible paralysis, and change of expression in the features. It is then important to warn the patient, who is to have a slight operation about the face, that he will have a temporary paralysis about the face for a little while, but that it will eventually recover.

Now after large trunks are cut off, unless the parts can be held perfectly still in apposition, their reunion is not so hopeful; but in these antiseptic days the stitching of the nerves together has been done with great success. It is said that you must stitch the sheath, or the neurilemma. That is very easily said, but is very difficult to do with ordinary instruments and needles without involving some of the nerve filaments and cells in the sutures. In fact, I believe it is practically impossible to stitch the neurilemma of the nerve and sheath close to the other divided end without more or less mutilation. Apposition of the ends, however, is what is needed. They should be snugly stitched together by antiseptic sutures. Put the limb on a splint so as to relax the nerve a little; dress the wound antiseptically; hope for union by first intention, and for union of the nerve.

The sensibility will not usually return for some weeks; but comes back very gradually as the nerve gets healed; and the nervous influence is re-transmitted across the space.

Partial cuts, then, will heal. Cuts of small nerves will repair themselves. Cuts of large nerves, as a rule,

will not repair unless they are sewed together by the surgeon.

Another class of affections and injuries of the nerves which are very troublesome, is when the nerve has not been cut off itself, but happens to get tied down in a cicatrix. This is a very distressing class of cases. It may occur in the continuity of a nerve, in the brachial or sciatic, that cicatricial tissue gets formed around the nerve, binds it down, compresses it, makes strong and elastic adhesions, and the nerve is held in this way until it gradually loses its own nutrition, withers, becomes changed in tissue, and so finally loses its use and function permanently. Unfortunately this change is almost always accompanied with a great deal of pain; and, inasmuch as most of the nerves have sensation as well as motion as part of their function, the pinching of the cicatrix, while it destroys the motor power of the nerve, at the same time inflicts severe pain on the sensitive portion; so that the tying down of a nerve in the cicatrix is one of the commonest causes of persistent neuralgia, or pain in the nerves. This, of course, is all relieved by cutting open the cicatrix, relieving the pressure, and sometimes by stretching the nerves, which may be done with blunt forceps.

Unfortunately there is another class of cases where the relief given is very doubtful indeed, and that is in case of neuromata or nerve tumors. They are not nerve tumors in the strict sense of the word. They are rather fibrous growths from the sheath of the nerve, which expand into little fibromata, in and among whose elastic fibres the nerve fibres get entangled and squeezed, apparently; and, although it appears as if there was a growth from the nerve itself, it is really fibrous tissue entangling the nerve in it. These neuromata, if single and occurring on single nerves, are curable, but when they occur in stumps, on the ends of divided sets of nerves, and occur in clusters, they are frequently incurable. The difference I do not know how to explain; but such is the fact.

Of the first class of cases is what is called the painful subcutaneous tumor. This means nothing more than a little neuroma, which is small, subcutaneous, and always implanted upon some cutaneous nerve. A favorite site seems to be on the peroneal regions about the fibula; also the arm. Wherever the cutaneous nerves are stretched pretty well over the bone, there occasionally comes what is called the painful subcutaneous tumor, which is nothing more than a little neuroma upon a cutaneous nerve-filament.

These little tumors are peculiar. They can barely be felt beneath the skin. They are little larger than bird-shot; are sensitive to pressure; and they are the seat of terrible neuralgia. The patient walks about for a while, or labors for a while, and as the day goes on this particular point begins to ache, and continues to ache until the limb is put at rest; and next day recurs again.

Now these troubles once recognized are perfectly curable by excision. The cure is complete; and there is no probability of a recurrence.

On the other hand, the class of neuromata which form on the divided ends of nerves in stumps after amputations, are multiple, and not only very painful, but they are very difficult to extract without recurrence. This is a very peculiar condition, which, as I say, we are at a loss to explain. On the brachial plexus, for instance, after a high amputation of the humerus, in the stump there begin to be formed painful spots which grow worse and worse until the patient is driven to have the stump reopened, the diseased points sought for and removed. On opening the stump, there is found on the brachial plexus a bunch of neuromata looking much like a bunch of small grapes. They grow out from the terminal ends of the cut nerves in distinct little fibrous masses. Of course, the surgeon endeavors to remove them all. He cuts short all the stumps of the nerves as far as possible and allows them to retract into the tissues, and the part heals up; but unfortunately, although this cures sometimes, it does not always do so; and recurrent pain comes on. The same series of changes take place higher up in the brachial plexus; and I know one patient where the pain finally went to the suprascapular nerve and the infrascapular, although removed about the axilla. This is a form of nerve affection which is not curable.

We see another class of cases distinctly curable, and that is where the end has got pinched in the cicatrix of the stump. You may have the bone a little too long. The flesh and skin of the stump are drawn tightly over the end, and then at some little nerve end you may have an exquisitely sensitive point where, if you touch it with the finger, the patient will scream out with pain, and which is always the seat of neuralgia. That is the case of a nerve imprisoned in the cicatrix, and that is curable. Cut away the cicatrix; shorten up the stump of the nerve, let it retract among the tissues and the difficulty is removed. In view of this danger, it seems to be a very important point in amputating to make sure that the nerves are cut short; and that you should not allow them to appear in the stump. If they appear relaxed and hang out, you had better draw out the nerve as far as you can, snip it far up, and let it draw back among the soft tissues where it cannot come anywhere near the surface, or be exposed to irritating adhesions.

Chronic inflammations of the nerve itself in the form of multiple neuritis are sometimes operated on, and sometimes they are temporarily relieved, but not always permanently relieved. The trifacial nerve is especially the seat of these cases of great suffering; and special names are invented for the affection. The inferior dental branch and infraorbital branch are the most frequent; the supraorbital not so often.

These nerves have frequently been cut down upon, the jaw and bones trephined, nerves excised, and sometimes they have been excised and pursued even up to the foramina through which they escape from the skull.

Permanent relief has been given in a few cases; temporary relief in all cases, pretty much. But the trouble is apt to recur; and sometimes operation after operation is done without procuring final relief. In this case, of course, we must conclude that the trouble finally becomes central: is in the central nervous system; and that the seat of the neuralgia is beyond the reach of surgical interference.

Now, the most practical points about all this — the most practical points surgically — are these: when a patient has had a blow, and, although the part looks well, when he insists upon it that it is always painful; that he is not comfortable; that the arm aches all the time, although nothing can be seen, you may conclude with great reason that a nerve has been bruised, and that he is having an effusion into its sheath that will not get well without treatment: that the treatment should be total rest, application of opiates, etc., until the effu

sion has gone. When you see a patient with these peculiar cranberry-colored knuckles and scaling off of the skin, you may conclude that, whatever that injury has been, a nerve has been badly damaged in some way. Then you would be mistaken in directing the treatment at all to the extremity of the hand and fingers where the trouble appears, but seek for the tender points above, and apply rest, splints, fomentations, etc., until you get the inflammation subdued. When you cut a little nerve on the face in doing any little operation, you will have more paralysis produced than you expected. You will be rather dismayed at the appearance of the face afterwards. You may, however, reassure the patient that the nerve will reunite in six to eight months. When a large nerve is divided, it will not, as a rule, reunite unless stitched together; and it is not possible to stitch the neurilemma without bruising nerve fibres; and that practically makes no difference provided the operation is done antiseptically and the wound heals by first intention. Great relief can be given to nerves caught in cicatrices by dissecting them out, and shortening them. A single neuroma has only to be recognized to be treated successfully by cutting it out, and it always gets well. A painful nerve caught in the stump can be cured by cutting it out. It is a good practical rule in amputating to cut the nerves short and allow them to draw back. The multiple neuroma is frequently incurable. We cannot promise cures. We can give temporary relief. The excisions of nerves for neuralgia always give relief lasting for months or years; but occasionally the trouble comes back beyond the foramina in the skull; becomes central; and the patient is the victim of permanent neuralgia beyond surgical aid.

Injuries of Muscles. — Now we pass to the injuries of muscles which are very few in number. The principal one is rupture of the muscle. Bruises and hæmatoma, of course, we expect will absorb and get well without suppuration, as a rule. The rupture of a muscle is a very troublesome affair. The partial rupture is not of very great consequence, but a complete rupture entails entire loss of function of the part. The biceps humeri and quadriceps extensor femoris are frequent instances; the most common of all, probably, the plantaris. The plantaris is merely the analogue of the muscle which in the bear pulls upon the plantar fascia as he walks. It is practically of very little use in man; and yet, when it is ruptured, it gives rise to quite serious lameness for about ten to fourteen days. As you may remember, the muscle starts with a very fine muscular bundle at the condyle, then becomes developed into a thin, long tendon which runs along the sheath of the soleus and gastrocnemius by the side of the tendon of Achilles, and finally is inserted into the os calcis. This snaps and ruptures in violent efforts, sometimes. The patient is not aware of what has occurred; but is almost always convinced that he has been struck. Something has hit the calf from behind; is compared by him to the blow of a whip-lash, or sharp stick, and he feels lame; immediately begins to manipulate the calf, and expects he has been bruised. In a little while, if you see the case, you will find a minute extravasation of blood has taken place in the skin and is gravitating down along the sheath of the plantaris tendon. That may not come out until the following day, or longer, but shows itself plainly; and when you see it, it is quite diagnostic of the affection. Meanwhile, the calf swells, the ankle swells a little. The patient walks not at all, or with great difficulty. He preferably takes a cane or crutch; and the trouble lasts one to two weeks. Nothing can be done in the way of repair. The injury is irreparable. The extravasation of blood along the sheath of the tendon makes the diagnosis clear. The diagnosis is strengthened by the age of the patient. This accident rarely takes place before the age of forty-five to fifty; and preferably in women of lax fibre and rather fat; occasionally in men. It usually occurs in consequence of some sudden and unexpected exertion; such, for instance, as trying to get hastily on a horse-car; trying to get up on a very high step; missing the step; getting off a curb-stone and coming down into the gutter; and, as I say, it occurs only in a person whose muscular fibres have become degenerated, is fat and lax; and the sensation is attributed to a blow from behind.

It is a good plan to treat it, because it gets well quicker. In the first place, if the patient is willing, he should lie still and have the calf fomented a day or two; a flannel bandage from the foot to the thigh applied, and kept on about two weeks. In addition to this, the patient must use crutches, or a cane. After about two weeks the trouble gets well.

Tearing away of the muscular fibres of the quadriceps extensor femoris from the tendon of the patella above makes a complete disability, just as complete as rupture of the ligament below. The muscle goes up in a mass, and the patient is practically helpless with regard to standing, and especially with regard to extending the leg.

Rupture of the biceps humeri makes an equally great deformity; but is not so marked in the disability it entails, because we always have the other muscles, the brachialis anticus and coraco-brachialis, to assist, so that the function of the biceps is not so missed as the function of the quadriceps extensor femoris.

It is a question in my mind whether it is not justifiable in these cases, if seen early, to cut down upon the part antiseptically, and try to sew the fibres together, put the limb in a state of relaxation on a splint and endeavor to promote adhesion. As a rule, the trouble is not fully recognized; tearing takes place gradually. The patient does not seek the surgeon until some time has elapsed; then the contractility of the muscular fibres is so great that the muscle is drawn so far beyond its place that it cannot be got down, and the trouble is practically hopeless of remedy except by position and bandaging and time.

Tendons rupture occasionally, but not very often. The most familiar mode of rupture is when the patient gets caught by the fingers; generally children, boys, getting caught on a fence or pickets, and having the finger caught, are temporarily suspended by the fourth or third finger. That tears the muscle in the forearm, and out come the tendon and muscle, the whole thing sometimes many inches in length, from the lacerated wound on the finger. These long tears of the muscles, of which there are a number of instances in the museum, are irremediable, of course. There is nothing to do but to extract and cleanse the part, and try to make it heal antiseptically, having forever lost the use of that particular tendon. Repair is impossible.

Tendons slip out of place sometimes; slip off from attachments about the ankle, the peronei especially; and also occasionally, it is said, the long head of the

biceps. This, however, is difficult to prove anatomically when it occurs; and it is perhaps not worth while to waste much time over it, as its existence even has been doubted. But the peronei about the ankle, and occasionally one of the ham-strings, slip out of place and have to be treated by bandage and apparatus to hold them in place.

The *Bursæ* are developed outside of the joints as a rule, little synovial sacs intended to relieve friction; and, as you know, they become developed by the use and friction of the part, in so much that certain trades are marked by peculiar bursæ. The miner has a bursa over the olecranon due to picking with his elbow raised so much against side walls. The bursa over the patella is the common one, as you know, which becomes inflamed and aggravated by work upon the knees, as in the case of women who scrub floors; and also largely in these later times, when hard-wood floors are used so much, in carpenters who work planing and polishing. The carpenter has what used to be called the housemaid's knee by this development of the bursa over the patella.

The only point we have to speak of in this part of the subject, in regard to bursæ, is their injuries. When they are wounded they give exit to an albuminous-looking fluid like the synovial sacs. They, of course, should be treated by cleanliness and rest, antiseptics, etc., until they can heal.

There are certain ones, however, which, when wounded, are extremely dangerous. For instance, there is a bursa developed about the semi-membranous tendon at the back of the popliteal space. This bursa is not very uncommon. It occasionally gets wounded, and unless treated carefully, entails serious consequences, because it very frequently communicates with the synovial sac of the knee-joint; consequently double care must be taken to wash out all dirt, cleanse and bandage it, and employ rest a good while, to avoid ill consequences.

The other class of bursæ which sometimes get injured, and sometimes are operated on surgically, are what are called ganglia, an improper name; they are also called, sometimes, weeping sinew. They form as little synovial sacs on the sheaths of the tendons at the wrist, especially on the extensors, sometimes on the flexors.

It is of the last importance to recognize a wounded joint and especially any synovial sac. The joints most frequently injured are the knee and elbow, especially the knee. The synovial sac of the knee is very large, extending far up above the patella. The punctured wound driven in above the patella is sure to injure it, and that is the favorite location for wound of the knee-joint. It may be a minute puncture. Nothing may attract attention to it unless we observe carefully, and then we shall see a little clear white, opaque, albuminous-looking fluid is coming out, not like blood, not like anything else. This is synovial fluid, and indicates puncture of the synovial sac; and it is extremely dangerous unless treated antiseptically, and by rest, inasmuch as destructive synovitis is likely to come on, if any dirt gets into the sac.

"WHAT a pretty dimple that boy has," said a lady visitor, as she patted the doctor's hopeful. To which the infant replied: "You think that is a pretty dimple? Well, you dess ought to see the one on my tummick."

Original Articles.

SIMULATION IN TRAUMATIC NERVOUS DISEASES.[1]

BY PHILIP COMBS KNAPP, A.M., M.D.,
Clinical Instructor in Diseases of the Nervous System, Harvard Medical School; Physician for Diseases of the Nervous System to Out-Patients, Boston City Hospital.

A HEBREW psalmist, in the days of the Maccabees, said in his haste that all men were liars. Two thousand years of further observation have led mankind to repeat the statement after due deliberation. The mysterious periodical illnesses that attack the school-boy at eight in the morning and are well by ten, the bronchial affections that render exposure to the air of the college chapel deadly to the student, the diseases of military life that have given "sogering" its special significance, the complaints that prevent our jurors from serving, and the many ills which are to be found in our prisons at sick-call, are examples of the psalmist's words, and show that man is ever ready to lie about his health, as well as about other things, if it be to his advantage. So also in cases where a claim for damages has arisen, a powerful motive for lying exists, and it can hardly be thought improbable, when the pension agent and the "coffee-boiler" league together to get a pension for corns or baldness, that the victim of a railway accident, the "shyster," and perhaps the physician should also form a triple alliance to divide the spoil of the railway company.

That there are men who are willing to do this I freely admit, and I grant that there may be a considerable percentage of them among those who present themselves before the claim agents of the railway corporations seeking for damages for personal injury. In litigation cases, however, there is a constant process of selection. Cases of gross fraud are detected at once, and either withdraw or content themselves with the pittance which the company may offer to avoid the expense of a suit. The "shyster," too, no matter what his morals may be, is averse to spending his time and strength for nothing on a hopeless case; or, if he be fully committed to a scheme to defraud a company, he will seldom risk calling upon a physician of good standing, fearing lest his fraud may be discovered. Consequently I believe that few cases of deliberate simulation are likely to reach the neurologist, and experience serves only to strengthen that belief.

Nevertheless "railway spine" has become a by-word; there is a widespread opinion, not only among the laity but among the medical profession, that a large percentage of litigation cases are fraudulent, and simulation is the stock defence in the majority of cases that come into court. Singularly enough, if simulation were as common as it has been maintained, the alleged fraudulent cases have been reported chiefly by surgeons and general practitioners, and it is only within the last three years that, so far as my knowledge of the literature goes, there has been any considerable support for this opinion coming from neurologists.

The chief discussion of the subject has been in Germany, although before that, Walton,[2] in this country, had decried the importance of many of the symptoms observed and maintained the possibility of successful

[1] Read before the American Neurological Association, July 27, 1893.

[2] Boston Med. and Surg. Jour., December 19, 1889; Jour. Nerv. and Ment. Dis., July, 1890.

simulation, and Seguin [3] had in part assented to his views. In 1890, J. Hoffmann [4] reported a series of twenty-four cases, eight of which he claimed were fraudulent. Soon after, at the International Medical Congress in Berlin, a heated discussion took place, and Schultze,[5] Seeligmüller [6] and Mendel [7] took practically the same position, claiming that from one-fourth to one-third of all cases were fraudulent. Eisenlohr and Reinhard [8] have also held similar views. These views have been fiercely attacked by Oppenheim,[9] supported by Dubois,[10] Möbius,[11] Strümpell,[12] Bruns,[13] Wernicke [14] and others. The cases of alleged simulation published by Hoffmann and Seeligmüller have been subjected to destructive criticism by Dubois, Möbius and Oppenheim,[15] while Oppenheim and his supporters have not hesitated to assert that those who find simulation so common have not a thorough knowledge of nervous diseases, especially of hysteria, and to quote Kühn's [16] statement on the simulation of insanity, to the effect that the number of simulants seen by the physician is usually in inverse ratio to his psychiatric knowledge. It is, moreover, of some significance that, in a second series of cases, Schultze [17] has found only ten per cent. of simulants, instead of thirty-three as in his first series.

In the study of traumatic nervous affections we run great risk of error, and we are liable to decide incorrectly that the patient is simulating, if we are not governed by the same principles which we apply to cases not of traumatic origin. Even in this latter class of cases we often see harsh and unjust judgment pronounced. If the patient have a disease of the imagination or of the will, it does not mean that the disease itself is imaginary or voluntary; yet, unfortunately, the majority of neurasthenic and hysterical patients are exposed to this reproach. The opinion is almost universal among the laity that patients with these disorders are "merely nervous; if they would only exercise a little will power they would be all right." There is much to warrant such a slur. The neurologist knows that the patient's statement that she has not slept a wink all night means that she has been awake an hour and a half out of the nine hours in bed, but the friends and the family physician are too often unable to make the proper personal equation and call the patient a liar. Tender regions in a hysterical patient may lose their tenderness or become much less tender if the patient's attention be diverted; analgesia may be associated with exaggerated sensibility to touch, or exquisite tenderness to touch may be associated with comparative indifference to deep pressure. A woman who vows that she cannot set foot to the floor may be led, either by the vigorous personality of the physician or by the "patter" and passes of hypnotism, to walk across the room. In many cases we find that some profound stimulus will rouse the enfeebled will power and that under the influence of the stimulus, the patient can do many things which before were impossible. Moreover the condition of the patient varies remarkably from day to day, and many symptoms, such as the extent of anæsthesia or the degree of limitation of the visual field, undergo pronounced changes.

In hysteria especially, there are many curious conditions which, to a layman, would be conclusive proof of simulation. For example, hysterical amblyopia affecting one eye, as Pitres [18] has shown, may exist only in monocular vision. When, for example, the right eye was closed, one of his patients with the left eye could hardly tell light from darkness; but, with a prism over either eye, she saw two objects, and, with a screen vertically before the middle of her face, she read letters on both sides of the screen, but, with the right eye closed, she saw no letters at all, and with the left eye closed she saw only the letters on the right of the screen. In such a case it is no wonder that a distinguished oculist should have told Pitres that he believed all cases of hysterical amblyopia were fraudulent. Janet,[19] too, has shown, and I have observed it myself, that if, in hysterical anæsthesia we touch the affected part, and then tap the "hidden self," we find that the patient has actually felt the touch. With pronounced contraction of the visual field, moreover, it is probable that the patient sees in the alleged blind region, for such patients go about without difficulty, a thing which has been frequently observed in cases where there was no litigation or thought of simulation, yet a thing which to some seems proof of simulation. Again, a patient may not be able to walk, yet examination will show that the sensibility, the nutrition, the power of co-ordination, and the muscular strength in the legs are normal, and the same patient can hop about the room perfectly well on either foot, or get about on all fours or with a tragedian's stride — and yet astasia-abasia may be a genuine affection. Other movements may be possible as co-ordinated movements, which cannot be performed by a distinct voluntary effort; just as an aphasic may sometimes sing a song when he cannot repeat the individual words; the lower centres being able to perform their functions perfectly when the higher cortical centres are powerless.

Hysterical and neurasthenic patients, moreover, may be very suggestible. In some cases the manipulations of an examination may be of influence, and may lessen or increase a sensory disturbance; the manipulation of a paralyzed arm may lead to muscular contractions, and when it is raised to a horizontal plane it may stay there under the influence of suggestion instead of dropping as would naturally be the case.

We have not disproved the existence of paranoia when we have demonstrated that there are no wires carrying electrical influences into the walls of the patient's room, and, in like manner, when we prove that the patient, under a powerful stimulus, can do what she says she cannot, that her pain is most marked when her attention is called to it, that her condition varies from day to day, that many of her complaints are due to a perverted imagination, and that much of her disability is due to a weak will — even if we prove all this, we do not disprove the existence of hysteria or neurasthenia. Neurologists, of course, are familiar with all these conditions and they can judge of them correctly, but the profession at large are, unfortunately,

[3] Annual Univ. Med. Sci., iii, N, 1891.
[4] Berliner klin. Wochenschr., July 21, 1890.
[5] Sammlung klin. Vorträge, No. 14, 1890.
[6] Deutsche med. Wochenschr., July 24, October 23, 30, 1890.
[7] Verhandl. des X Internat. Med. Congresses, Bd. iv, Abth. ix.
[8] Neurol. Centralbl., February 15, 1892.
[9] Weitere Mittheilungen in Bezug auf die traum. Neurosen, etc., Die traumatische. Neurosen, 2te Aufl.
[10] Correspondenz-Blatt für Schweizer Aerzte, September 1, 15, 1893.
[11] Münchener med. Wochenschr., September 29, 1891.
[12] Neurolog. Centralbl., May 1, 1893; Lehrbuch d. spec. Path. and Ther., 7te Aufl.
[13] Schmidt's Jahrbücher., ccxxxiv, 25.
[14] Neurolog. Centralbl., May 1, 1893.
[15] Archiv f. Psychiatrie, xxv, 248.
[16] Op. cit., xxii, 649.
[17] Deutsche Zeitschr. f. Nervenheilk., i, 445.
[18] Leçons cliniques sur l'hystérie, i, 103.
[19] L'automatisme psychologique.

still ignorant of them, and hysterical or neurasthenic patients are often misjudged in consequence, while the laity often think them deserving of the dark house and the whip once used for the insane.

It is impossible, as I have already said, to judge correctly of traumatic nervous affections without a thorough knowledge of nervous diseases in general. No man can become an expert simply by reading Erichsen, or Page, or Charcot, or Oppenheim, or all together. All these seemingly fraudulent conditions which I have spoken of, and many more, may exist in traumatic cases, and the chances are ten to one that they will be set down as proof of simulation — yet they may be genuine and the demonstration that the symptoms are not what they are claimed may be no proof at all of fraud. Suppose, for example, that a case of astasia-abasia were to come into court. Hundreds of physicians capable of making a careful and fairly thorough examination would find no defect and would swear that the case was fraudulent, yet the few men familiar with the affection would admit the possibility of its genuineness. The proofs of simulation, therefore, are not absolute and cases that seem palpably fraudulent to the ordinary practitioner become genuine or, at least, doubtful, the wider our knowledge of hysteria and neurasthenia becomes.

Bearing these points in mind we will usually find, by a thorough examination, that there are various symptoms which put simulation pretty well out of the question. I have already [20] gone into the question of methods of examination at considerable length, so that I shall here touch upon only a few points.

Setting aside the question as to the frequency with which contraction of the visual field occurs, I believe it to be a sign of great value when it is found, and the few experiments which I have been able to make on healthy subjects have led me to believe that it is very difficult, if not impossible, to simulate successfully a definite limitation, especially if that limitation be slight. Wilbrand and Sänger [21] confirm this opinion, and show how, by certain variations in the method of testing, such as testing on the arc of a much larger circle, simulation can be readily detected. If Förster's shifting type (Verschiebungstypus) of contraction be present, the genuineness of the symptom, according to König,[22] becomes still more pronounced.

Anæsthesia I believe to be an important symptom. Where the boundary is definite it is safe to assume that the symptom is genuine. Some people can determine with considerable accuracy whether they are touched to the right or the left of the median line, but if the boundary be to one side or pass more horizontally about the body or limbs it becomes much more difficult to tell on which side of the line the touch is made. Where there is much anæsthesia an unexpected and severe painful stimulant will elicit an expression of pain. Pitres [23] gives an instructive case of a man who came to the hospital to get a place to live in. He had for years played the part of the anæsthetic man in a show who stuck needles all over himself, and hence he feigned anæsthesia as a part of his fictitious disease, but the unexpected application of painful stimuli at once exposed his pretensions. This I believe to be the rule. If the prick be expected, any man can control himself so as not to express any feeling, but, for reasons which I shall speak of later, no man can keep constantly on his guard to repress emotion from an unexpected painful stimulus.

A simulated tremor can readily be detected because voluntary trembling is always of unequal rhythm and the movements vary in extent. If a fairly regular voluntary tremor be produced in the way Walton has suggested, by resting the hands on a table, it will require but little acumen on the part of the examiner to detect it. Of other motor disturbances, paralysis and contracture, I will speak later on.

The condition of the reflexes is of much importance. A difference in the skin reflexes on the two sides in cases of hemianæsthesia will establish the existence of anæsthesia beyond dispute, and the exaggeration of the knee-jerks so often met with, although not beyond the normal limits, is often suggestive of neurasthenic conditions.

Finally the condition of the circulatory apparatus is often important. A rapid pulse when the patient first presents himself for examination is, as Walton has shown, a very common thing in all sorts of cases; but a persistent rapid pulse is of more significance. Evidences of defective circulation are also frequent. Mannkopf's test of the increased rapidity of the pulse from pressure on painful regions has justly been accepted by Schultze as positive evidence of absolute value, and I have proved its importance in many cases.

All these symptoms may fairly be regarded as objective evidence of morbid conditions, and careful examination will reveal some of them in almost every case.

Let us consider now the ordeal through which a simulator must pass in order to deceive a skilled neurologist.

Of course, it may be admitted that if he complain of one subjective symptom, such as headache, it will be a difficult matter to prove the truth of his statements; but, if he present the symptom-complex of hysteria, neurasthenia, or any of the forms of traumatic nervous disease which are now recognized, the case is different. Let us suppose him to be wise enough to describe his symptoms in a subdued tone, to complain of moderate pain, of partial paralysis, of slight limitation of the visual field, of slight anæsthesia, instead of painting everything in vivid colors the way the ordinary prison malingerer does. Let him study any approved monograph on the subject — and he must know a foreign language to get at the best — and let him have a fairly skilful medical coach to train him in his feigning. With all that he is at an enormous disadvantage. The chances are that no man of high professional attainment would become a partner in such a scheme, so that his coach must be inferior to the examiner. The examiner knows all the monographs he has studied and more besides; he has the foundation which the simulator has not of a thorough knowledge of nervous diseases, and he has had experience in examining hundreds of cases and familiarity with instruments of precision. Even if the simulator be well-trained it is no very difficult matter for an expert to find the flaws in his acting; but if the examiner, as is so often the case, be a man without special training in nervous diseases, the simulator may succeed and the examiner will be likely to fall into error. This condition, however, which I have just described, demands that the simulator have learning enough to profit by his study and wit enough to play the part. It is needless to say

[20] Boston Medical and Surgical Journal, December 19, 26, 1889.
[21] Ueber Sehstörungen bei functionellen Nervenleiden.
[22] Berliner klin. Wochenschr., No. 31, 1891.
[23] Op. cit., i, 79.

that in the majority of cases that we see such attributes are lacking. Simulation of mental symptoms is especially difficult.

Another point must be borne in mind, to which attention has seldom been called. Recent investigations in psychical research have shown that it is possible for a man to keep his attention steadily fixed on any one subject only for a very short time. This is the secret of the prestidigitator's success. In every trick there is some one movement necessary to its success, which is done in full sight of the audience. Even if they know what the movement must be, it is impossible for them to keep a continuous lookout for it, and when by the many needless flourishes and the continual "patter" their attention is diverted for half a second, the movement is made and not more than one in a hundred has seen it. If it be thus impossible to keep the attention fixed on one thing, it is much harder to keep it fixed on half-a-dozen things at once; just as a man who plays a fair game of chess may find it impossible to play half-a-dozen games at once. When, therefore, a man tries to feign paralysis, anæsthesia, tremor, hyperæsthesia, and contracted visual field, granting that he could feign each one fairly well for a few minutes, it becomes impossible for him to keep it up for an hour or two before a man who is watching to take him off his guard.

I believe, therefore, that the successful simulation of any of the more complex forms of traumatic nervous affections is practically impossible if the examining physician be a trained neurologist, familiar with nervous and mental disease and with the methods of special examination.

I will cite very briefly three cases where the plaintiff was alleged to have simulated disease in the hope of obtaining damages.

Mrs. R. was said by all her neighbors to be a fraud, and it was alleged that she and her husband were planning to swindle the railroad company, but no special evidence of their suspicions could be elicited. Two surgeons of high standing had examined her a year and a half before and found nothing to lead them to think she had any serious trouble. They reported that she would get well when the case was settled. One of the lawyers for the road was positive that she was a fraud. I found general diminution of sensibility, great muscular weakness, absence of knee-jerks and of the abdominal reflex on one side, diminished faradic reactions, and Mannkopf's symptom. Three days later she died.

M. H., a very stupid day laborer, was regarded as a fraud by three physicians of high standing. He was seen out of doors, but when the doctor came he hurried into the house and got into bed. Examination in the presence of the counsel for the defence, however, convinced him of the genuineness of the patient's complaints, and he settled the case. The man had hemianalgesia with normal tactile sense, exaggerated knee-jerks, and Mannkopf's symptom, and he was besides, very pale and wretched looking.

In the case of E. R., the charge of simulation was hotly maintained. The patient complained of complete paralysis and anæsthesia on the right side. About half the adult population of a little country town swore that they had seen him use repeatedly the paralyzed arm and leg; the other half swore they had never seen him do so. The visual field was slightly contracted, and the blue field was smaller than the red. There was complete and sharply defined hemianæsthesia, and the strongest faradic current conveyed through a needle-pointed electrode, when unexpectedly applied, did not cause a start. The pulse was not quickened by driving pins under the finger nail. The tendon reflexes of the paralyzed arm were exaggerated, and the plantar reflex was absent in the anæsthetic foot. The paralyzed hand was cold and congested, and there was a diminished growth of hair on it. The right arm was nearly three centimetres smaller round than the left, which the defence claimed was simply atrophy from disuse, but they attempted, in order to disprove the paralysis, to show that he had repeatedly used the arm. Finally electrical examination showed degenerative reaction in the arm.

In going over the records of fifty consecutive cases which I have examined with reference to determining the degree of injury and to giving an opinion to be used in settling the claim for damages, I find that the percentage of simulation is very small. The cases, it may be said, were of all sorts, from simple traumatic lumbago to fracture of the vertebræ with complete division of the cord.

Of these fifty cases, thirty-eight were undoubtedly genuine, and were due to the injury. In these cases there was little special exaggeration, not much more than the ordinary extreme statements of an invalid. In six there was old chronic disease, but in five of the cases I was able to convince myself that the injury had clearly produced certain symptoms which aggravated the disease. One of the five cases was a case of tabes who had a traumatic lumbago. He had previously had merely the initial pains of tabes which he called rheumatism, and the result of learning that he had tabes had a very bad mental effect. In the sixth case I could find no evidence of fresh disease on examination, and nothing to corroborate the patient's statements, which were vague and contradictory.

In five cases there was distinct exaggeration, usually, however, involuntary. One patient, in whom I found nothing on examination, admitted that she had nearly recovered, but her statement as to previous suffering seemed out of all relation to her present condition. Another man was seriously injured, but made a good recovery, yet, perhaps from hypochondriasis, perhaps from the continuance of litigation, he made no effort and complained a good deal, until, after a second examination, I assured him that he was well, when he promptly improved, before the litigation was ended. Two other cases thought they had received an electric shock, and they imagined all sorts of ills in consequence. In one case certainly the assurance that no harm had been done had a speedy beneficial effect. Such hypochondriacal conditions are very common in cases where there is neither traumatism nor litigation, and it is certainly unjust to regard their morbid fears as a mere pretence.

Two of the cases were in children. In Walton's series of eighty-two cases he found none in children under fifteen. I have seen five cases in children, three of which are included in this series, but one was a case of coarse mechanical injury — fracture of the spine. In one of the cases physical examination revealed nothing except a very apathetic condition, but the mother's statement as to the mental condition was confirmed by disinterested observers. In the second case the parents made extravagant claims, but no complaints could be elicited from the child, and examination revealed noth-

ing abnormal except a slight peculiarity in going up and down stairs. The child was only seven, so that the guilt of simulation must rest more upon his parents than upon him.

Out of fifty cases, therefore, I find only two where simulation seems at all probable — one case of pre-existing disease and this child — and in neither of these cases is deliberate, conscious simulation proven. Exaggeration is more common, but even in extreme cases it may be due to perfectly natural causes, and not to an attempt deliberately to deceive. Men will simulate if they can, but ignorance cannot contend against knowledge. The charge of simulation is a favorite defence in suits for damages, but I believe it can seldom be substantiated, and that it rests more upon the ignorance of the examining physician than upon any conscious volition of the patient.

THE STUDY OF THE ANATOMY OF THE CENTRAL NERVOUS SYSTEM.

BY EDWARD WYLLYS TAYLOR, M.D.,
Laboratory and Clinical Assistant to Dr. Hermann Oppenheim, Berlin.

IT is probable that no single province of scientific medicine is, at present, demanding more critical study from so large a number of skilled investigators, than is that of the finer anatomy of the central nervous system. The reasons are not far to seek. First, human anatomy, excluding the nervous system, is, generally speaking, a closed chapter. If certain details yet remain to be added, it may still be said that the finer histological structure of the organs and tissues of the body, as well as its grosser form, is adequately understood. The topography of the brain, spinal cord, and peripheral nervous system, at the beginning of this century had also been thoroughly studied, so that little remained to be added. The histological character, on the other hand, remained completely obscure, for the reason that no methods of preparation had, as yet, been found by whose aid the observer could distinguish its various elements. In the second place, the nervous system, corresponding to its dignity in the organism, stands at the head of the tissues in complexity of arrangement and therefore was naturally the last to demand scientific investigation. Finally, with the growth of the spirit of exact observation, the feeling has developed that the interests of physiology and psychology, as well as those of anatomy, demanded a most thorough-going investigation of the finer relations of the physical elements, which we recognize as inseparably associated with our mental life, in its broadest sense. To the physiologist, it is a matter of the utmost theoretical importance to determine the exact anatomical conditions under which sensory and motor conduction, for example, take place. For the psychologist, also, who has taken his place among empirical investigators, the physical substratum of the psychical processes, which are his main interest, is no longer a matter of indifference. In the psychologist's training, anatomical and physiological knowledge have, in great measure, taken the place of metaphysical speculation. For the anatomist, finally, the subject has become of absorbing interest on its purely scientific side — the facts, simply as facts, are interesting enough to demand his faithful study.

The fact, then, that the histology of the nervous system was not understood and the fact that in the interest of physiology and psychology, as well as in that of anatomy for its own sake, it demanded investigation, may be looked upon as ultimate reasons of the enthusiastic research of the last few years. If, however, such causes have been at work with peculiar force during the past two or three decades, it is equally true that the means of satisfying the scientific curiosity have grown as rapidly, until now, with the aid of the wonderfully improved methods of microscopic research, it is, at least, possible to look forward to the time when the anatomical relations of nervous tissue will stand in the same category of exact histology, as do the component elements of the lung or kidney or liver. How this change has been brought about, and how, step by step, our knowledge has grown, a glance at the history of the study of brain anatomy will show.

Aristotle's conception of the nervous system was, that the brain is without sensation and without blood, and that its function is to precipitate mucus. The spinal cord he regarded as different in character from the brain; the function of the nerves he failed utterly to understand. Galen, in the second century after Christ, was able to give a description of the cranial nerves, which, in some small details, corresponded with the facts. During the Scholastic period the study of anatomy remained as neglected as every other department of knowledge, but with the beginning of the Renaissance the interest revived, and Vesalius, Eustachio, Varoli, Fallopia stand as leaders in arousing an interest in the study of the central nervous system. In the seventeenth century appeared, for the time in which they were written, accurate descriptions of the topography of the brain in the writings of Willis, Vieussens, Sylvius and others. Toward the end of the last and the beginning of the present century the work of Sömmering, Vicq d'Azyr, Rolando, Spurzheim, Gall, Riel, Burdach and others had brought the descriptive anatomy of the brain practically to completion; the relation of fibre systems to each other and to the various ganglia, and in general the finer structure remained, however, almost completely uninvestigated. In 1819 appeared Burdach's book, entitled, "Vom Bau und Leben des Gehirns," which is to be regarded as the completest work on the subject up to that time.

It is interesting to note the methods of research employed. At first, hardened bits of the brain were roughly torn apart with forceps, until, in the third and fourth decades of the century, with the discovery of nerve fibres and ganglion cells, the necessity of a less crude procedure brought about the method which Stilling first regularly used, namely, of preparing thin sections serially, so that the brain might be again reconstructed from the separate pieces. The value and, in fact, necessity of such a method is being more and more recognized for an adequate understanding of the relations of the various parts of the brain. From its introduction dates a most decided advance in our knowledge. Stilling himself seems fully to have recognized the significance of his procedure. Of a section through the hardened spinal cord he, in substance, writes: "When I brought the section under the microscope, with a power of fifteen diameters, and saw the beautiful transverse fibres, I knew that I had found a key which would unlock the chambers of the marvellous structure of the spinal cord."

With the introduction of the microtome and the

improved means of hardening nervous tissue came a new step in advance, but it was not until 1858, when Gerlach introduced the method of staining with carmine, that a really adequate differentiation could be made between the nerve fibres of the white matter, and the cells and connective-tissue of the gray matter. This method, by which the medullary sheaths of the nerve fibres were left practically unstained, while the ganglion cells, axis-cylinders, and neuroglia tissue took on a red color, was for many years the only one used and even now must be looked upon, as, by all means, one of the most valuable we have, and one which should never be neglected in the investigation of pathological changes. From the introduction of carmine as a staining agent dates a new era in the study of the finer anatomy; relations of gray and white matter became at once evident, which in fresh preparations could, at best, be but imperfectly distinguished. Other methods of staining followed, as, for example, that with nigrosin, and much valuable work was done by their aid, both anatomical and pathological, but there was still need of a method, by means of which the medullary sheaths of the nerves might be stained and so the course of fibres be more adequately followed. This service Weigert, 1884, rendered in the development of his "hæmatoxylin method," a method which has been one of the most valuable and significant in its results in the whole field of nervous anatomy. By it, the finest medullated fibre is stained black or deep blue, its course is thus easy to follow, and relations of fibre systems are revealed, which carmine had failed to make evident. Through a combination of the two methods, "carmine" and "Weigert hæmatoxylin," the essential characteristics of nervous tissue were brought into clear light.

Space does not permit even an enumeration of the different methods which followed close upon Weigert's publication. Three of the more valuable are: Pal's modification of Weigert's method, again a medullary sheath stain; Freud and Flechsig's gold-chloride axis-cylinder stain; and Exner's osmium-acid stain, especially for peripheral nerves.

Much as these various methods revealed of histological structure the all-important questions still remained entirely obscure — of the relations of nerve cells to each other, the relations of nerve fibres to cells, and the ultimate origin and ending of nerve fibres in the central nervous system. This knowledge none of the methods heretofore mentioned were able adequately to disclose.

The view which excited most controversy and yet seemed to approach nearest to the facts was advanced by Gerlach in 1871, after a careful series of investigations with the gold-method. Six years before, Deiters had arrived at practically the same results. They were, however, worked out by Gerlach with improved methods and in greater detail. Gerlach's conclusions, in brief, were as follows: that, in addition to its axis-cylinder prolongation, each ganglion cell gives off a large number of so-called protoplasmic processes, which soon after leaving the cell-body divide, anastomose with similar offshoots from other ganglion cells, thus forming a dense network, so that finally all the nerve cells of the brain are brought into direct relations with each other, "per continuitatem." As an explanation of the origin of nerve fibres which do not spring from the axis-cylinder prolongation, it was maintained that by the reuniting of certain of the protoplasmic branches, other axis-cylinders were constituted, and that, finally, the nervous system, as a whole, might be regarded as a unit, made up of an infinite number of connected cells and fibres, the connections being, for the most part, effected by the protoplasmic processes.

Discussion arose, but in general the theory of Deiters and Gerlach remained unassailed until the appearance of Golgi's main work, Padua (1885–6). Golgi employed an entirely new method with silver, whose advantage over all previous ones lay in the fact that the stain was selective. The extreme complexity of the network of fibres described by Gerlach no longer obscured the destination of the finest endings of the protoplasmic processes, since in each section, for some as yet obscure reason, only certain cells or fibres took the stain. A simplicity was introduced into the microscopic picture, which evidently detracted nothing from its truth, and yet showed relations which the previous unselective stains had merely tended to obscure.

In the hands of Ramón y Cajal in Spain, the Golgi method received a new impetus, so that now it is certainly not too much to say that it has proved itself to be one of the most significant contributions to histological study of this century. Its teaching is little short of revolutionary, and necessitates a complete reconstruction of our conception of the histology of the nervous system. In its main features the theory advanced by Golgi and substantiated by all those investigators who have employed his method has received universal acceptance. It holds that the relations which Gerlach had supposed to be anastomatic and direct are, in reality, in every case, indirect, that no nerve ending or protoplasmic process connects "per continuitatem" with any other, and that the only relation which exists is one of contact, "per contiguitatem." From this it follows that the nervous system, instead of being a unity of connected elements, is rather a plurality of separate elements, so-called "Nerven-Einheiten" or "Neurone." Each "neuron" consists of a cell, an axis-cylinder (if it have one) and protoplasmic processes. Such a nervous element is a unity, absolutely complete in itself, and bearing no relation, excepting that of contiguity to other equally independent nervous elements. A multiplicity of such distinct units makes up the nervous system. This, in briefest outline, is the essence of the modern view.

The distinction between the old and the new idea is so far-reaching in consequences, that, at the risk of repetition we venture once more to compare them. The old view, represented by Gerlach, maintains — first, that each nervous element stands in *direct* relation to other nervous elements through anatomical continuity, and secondly that the nervous system represents a *closed* unity, each part of which is connected anatomically with every other part. The new theory (Golgi, Ramón y Cajal) holds, on the other hand, that each nervous element is *absolute, independent*, stands in *no* direct relation to any other nervous element, and that the nervous system, as a whole, is therefore made up of a plurality of anatomically *unconnected* elements.

The details of technique, the mass of interesting points of dispute which the new disclosures have revealed, the physiological question of nerve conduction by contact, instead of by continuity of structure, do not enter into the scope of the present article. Too much stress, however, cannot be laid upon the extreme signifi-

cance of a method of research, which has so far altered our preconceived conceptions, and which is likely, in the near future, to introduce clearness into a subject, which heretofore has eluded most conscientious investigation.

Lack of space prevents anything more than a passing allusion to the services of Henle, Meynert, Waller, Türk, Ehrlich, Flechsig, Charcot, Westphal, Gudden, Waldeyer, Lenhossék, His, Kölliker, Gowers, and many other investigators, all of whom have materially advanced the knowledge of the finer anatomy of the nervous system.

It is natural with the renewed interest which recent research has aroused, that special laboratories should have been established. The subject has already grown far beyond the scope of a general anatomical and pathological course; its literature is increasing almost daily, and the microscopic technique, required for the successful preparation of specimens, has developed into a special study. In view of these facts a number of laboratories have been opened, whose general object is to offer courses of instruction in the methods of hardening, imbedding, cutting, and finally staining and mounting of nervous tissue, according to the various more or less complicated processes, already alluded to. Of such laboratories the best known are those of Obersteiner in Vienna, of Weigert and Edinger, who work together in Frankfurt am Main, of Mendel and of Oppenheim in Berlin. Each of these laboratories is devoted solely to the study of the normal and pathological anatomy of the nervous system. With certain restrictions in the case of the Weigert-Edinger laboratory, they are all open to students. Original work with the publication of results is, in general, desired, but of course is in no sense compulsory, the main object being to provide adequate instruction in methods which are essential to a correct understanding of the finer anatomy of the nervous system. It is probable that, within a short time, a third laboratory will be opened n Berlin under the direction of Professors Jolly and Siemerling; a better indication than this of the enthusiasm which the work is arousing could hardly be given.

In addition to such practical instruction, Professors Waldeyer, Mendel and Siemerling each offered during the last winter "Semester" a course of lectures, extending through the entire term on the normal anatomy of the central nervous system. It goes without saying that the lectures were most amply illustrated by dissections of the fresh brain, by hardened preparations, diagrams, enlargements of microscopic specimens thrown on the screen, and the free use of sections that were taken serially in various directions and through various regions of the brain and cord; the finer anatomy, nuclei of the cranial nerves, and especially the course of fibres, in every case, receiving a large share of attention. To the special student the value of such courses of lectures supplementary to practical microscopic work is self-evident. The crowded lecture-rooms are, however, but another evidence of the widespread interest which the general medical student and physician, as well as the specialist, feel in a subject, which a few years ago they would have left almost completely out of their medical training.

Without drawing comparisons, or prying into causes, it is, at least, interesting to note the fact of the contrast between the English-speaking countries and the continent of Europe in this matter of the scientific investigation and teaching of brain anatomy. Reasons aside, it is evident that England and especially America are so much behind, as scarcely to be able to claim any recognition. Of 175 references to the literature in Lenhossék's latest publication ("Der feinere Bau des Nervensystems," Berne, 1893,) only four or five English names appear and but one American — a disparity which is, unfortunately, evident enough in many departments of scientific work, but which in this case is more than usually conspicuous. It is most earnestly to be hoped that the immediate future may see a change, and that a subject, which, on the face of it, is of the utmost scientific and practical importance to physiology and psychology, as well as to pathology, may have a small place, at least, in the optional laboratory training of the American medical student.

Clinical Department.

A CASE OF LITHOLAPAXY.

BY FRANK M. SHERMAN, M.D., NEWTON LOWER FALLS, MASS.

MRS. C., aged forty-seven, widow, mother of seven children, passed "sand" with the urine eighteen years ago. Eight years ago, soon after the birth of her youngest child, she began to have pain in the bladder region, especially during micturition, and then began to notice a deposit in the urine. These symptoms have steadily increased in severity. Eighteen months ago she began to have incontinence of urine, this also has continued.

June 17, 1893, I was called, and found her suffering with fever, chills, pain, frequent desire to micturate, tenesmus, incontinence of urine, and loss of appetite. The urine contained a large amount of pus and blood. Examination showed extreme tenderness of the bladder. The bladder cavity was small, and a stone was plainly felt. There was evident dilatation of the neck of the bladder and of the upper part of the urethra.

For the next three days the bladder was washed out with boric-acid solution and the same drug was administered internally.

The general and local conditions being much improved, with the assistance of Dr. W. B. Lancaster, of Wellesley Hills, litholapaxy was done on June 21st.

Using cocaine anæsthesia, the Bigelow lithotrite, and Newell's evacuator, and short, straight, open-end tubes (which worked perfectly in evacuating the *débris*), the only difficulty found in the operation was the trouble in keeping enough water in the bladder to easily manipulate the lithotrite.

The stone (phosphatic) was about one and one-half inches in diameter. The bladder was washed out daily for a week. The urine and the washings contained much muddy and sticky detritus for several days, then became clear.

Recovery was uneventful. There was no rise of temperature. Patient was up and about in eight days.

The incontinence still continued; and July 1st a soft "doughnut" pessary was introduced into the vagina, which effectually controlled it.

On August 3d the bladder was examined and washed out. The urine was found clear. No signs of re-formation of the stone. The pessary is still necessary to control the incontinence.

THE SUBCUTANEOUS INJECTION OF SALT SOLUTION A SUBSTITUTE FOR THE INTRAVENOUS METHOD; REPORT OF CASES AND A SIMPLE APPARATUS.

BY FARRAR COBB, A.M., M.D.,
House Surgeon, Massachusetts General Hospital.

In a number of cases of collapse seen during the past three months of my hospital service sterilized salt solution was used subcutaneously instead of intravenously. A large-sized trocar of the aspirator pattern with a stopcock and entrance on the side, about six to eight feet of rubber tubing, and a hard-rubber funnel was the apparatus. The funnel and tubing after being sterilized were kept in corrosive sublimate (1–1000). The trocar was kept sterilized in a tin-box. The sterilized salt solution was kept at a strength of twelve parts to the thousand, so that when needed the addition of an equal amount of boiling water made it of the proper strength and temperature for instant use.

The following cases were all grave emergencies from hæmorrhage or shock.

Case I. Brought to hospital with a stab wound through the popliteal vein. When first seen had no pulse, was blanched, with sighing respiration and cold extremities. Three pints of hot salt solution were injected under the skin of the abdomen and thighs. The time of preparation taken was only that needed to scrub the skin and add boiling water to the solution. The pulse responded almost at once, and twenty minutes after the injections was good. The case fully recovered.

Case II. Internal hæmorrhage from ruptured kidneys and spleen. Four hours after entrance unconscious, cold extremities, blanched and pulseless. Three pints of hot salt solution injected into inguinal regions and thighs, resulting in rapid improvement in the pulse. The man regained consciousness and talked with his friends for an hour, but after this slowly failed, and died during the day. In this case the improvement in the pulse and mental condition was surprisingly lasting.

Case III. Marked signs of internal hæmorrhage, pulse almost imperceptible, blanched, unconscious. A quart of hot salt solution injected, giving fairly good pulse and return to consciousness for half an hour; but after this he became again pulseless, and died.

Case IV. Railroad accident. Crush of lower leg, with evident marked loss of blood. Pulse very faint and rapid, cold extremities. A quart of hot salt solution was injected (after vigorous stimulation with digitalis, atropine and strychnine had failed to cause reaction), and resulted in rapid improvement; eventually he recovered sufficiently for a successful amputation.

Case V. Severe abdominal operation for fibroid with profuse hæmorrhage followed by collapse. A quart of hot salt solution caused rapid improvement, and the case ultimately recovered.

Case VI. Both legs crushed in railroad accident. Condition of extreme shock, not reacting to vigorous stimulation. Three pints of hot salt solution under the skin caused steady gain. Pulse became fairly strong, the face regained its color, and the improvement lasted for three hours, though ultimately the man died.

The advantages of this method are its simplicity and the rapidity with which it can be done. The pressure of from four to six feet is enough to make the fluid run freely. In the above cases the loose skin in the inguinal regions was selected and the assistant stood on a chair or table holding up the funnel which he kept filled with salt solution from a pitcher. The inguinal regions took from ten to twelve ounces and the outside of the thigh somewhat less. The fluid always ran readily and was absorbed with astonishing rapidity. The effect on the pulse was not quite as soon noticed as if the solution had been thrown directly into a vein, but improvement began in every case before six ounces had been injected, and was after that as marked and as lasting as in the intravenous method. The two or three minutes wait for a response was more than offset by the saving of time in the technique as compared to opening a vein.

Medical Progress.

REPORT ON DERMATOLOGY.

BY J. T. BOWEN, M.D., BOSTON.

(Concluded from No. 11, p. 276.)

CUTANEOUS SARCOMA.[4]

On the 3d of January, 1893, Kaposi exhibited at the Vienna Medical Society three patients suffering from different varieties of sarcoma of the skin. He passes over the cases of isolated sarcoma of the skin, which may appear spontaneously or after injuries, and which may not have recurred ten or fifteen years after extirpation. The forms in question are those that constitute a serious general disease, by the extension of the tumors.

The first case presented was that of a man of fifty-one, affected with multiple idiopathic pigmented sarcoma, the form first described by Kaposi, in 1869. In this form the nodules always appear at the same time upon the hands and feet, are of a bright red color, changing sometimes to a bluish or dark red in consequence of capillary hæmorrhages, and become confluent to such an extent as to form nodular tumefactions upon the hands, fingers and toes, and cause a painful sensation of burning and tension. Ulceration is rare, usually only after traumatism. After the lapse of months or years the oldest nodules disappear by absorption and leave a brown cicatricial atrophy of the skin, not unlike that seen in syphilis and leprosy. A long time afterward new papules and nodules of the same type appear upon the arms, legs, ears, nose and lips, many of which are absorbed, while others increase and form fungous tumors. Finally, after five to eight years, nodules appear on the mucous membranes, in the lungs and internal organs, and the autopsy reveals a great number of very vascular nodules in the liver, spleen, and on the mucous membrane of the large intestine.

The course of this form is, therefore, rather slow, but always fatal. No good results have been obtained by treatment with arsenic.

The case presented showed a deviation from this type. It developed four years previously, with excessive pain and swelling of the hands and feet. Eleven months previously, on entrance into the hospital, the dorsal aspect of the hands and feet was greatly tumefied, of a reddish-blue color at the centre of the swelling, while the margin alone presented some small reddish-blue papular elevations. The palms and soles were red, swollen and excessively painful. Kaposi had

[4] Wiener Klin. Wochenschrift.

never seen so great redness, induration, and tumefaction, except in the case of very confluent nodules. But in spite of the deviation from the usual type, the correctness of the diagnosis was proved by the appearances that were then seen — namely, characteristic papules and nodules upon the ears and pupils, and a plaque with atrophy in the centre upon the buttock,— appearances that are, it is true, not usually seen until numerous nodules have formed on the hands and feet. At first, there was an improvement under treatment, but of late numerous foci had appeared on the buttocks and limbs in the form of disks and irregular circles, with slight infiltration.

A second type, the true melanotic sarcoma, was shown in a man of fifty-one years, that had begun three years previously with a swelling of the left leg. It is now the seat of an elephantiasis, less pronounced upon the right leg, and extending upward toward the pelvis; on the left knee were numerous reddish-brown nodules, and on the thigh numerous hard, dark blue papules. This form frequently arises from a nævus, often of the toe, which degenerates into a sarcoma or is excised, and the affection then extends along the lymphatic channels reaching the pelvis and internal organs. This form often appears on the skin, also, as a metastasis of primary visceral sarcoma.

A third type of cutaneous sarcoma was illustrated by a woman of seventy-six years. This type is less sharply defined histologically, as its relation to certain constitutional conditions as leucæmia and pseudo-leucæmia are a matter of dispute at present. The case in question had begun three or four years previously, and presented now nearly one hundred tumors upon the two shoulders front and back, upon the upper part of the chest and scapular region. The nodules were hard and elastic, from the size of a pea to that of a nut, hemispherical in form, from bright to dark red, glistening, and painful to the touch. There were also plaques as large as the palm of the hand, with central depression, like those of mycosis fungoides. There were almost as many nodules on the dorsal and sacral regions, the thorax and abdomen, together with a few on the limbs. As two similar cases, of which drawings were shown, had been cured by arsenic, injections of the arseniate of soda were tried. After six or eight injections most of the nodules had diminished one-half or one-third, but later, in spite of persistence with the treatment, they had again increased in size. Kaposi pointed out that since arsenic was first recommended by Köbner, many cases had been reported as cured by arsenic, a part of which, however, had finally terminated fatally.

Histologically, the place of this form has not yet been settled. In many respects the microscopic appearances resemble those of a round-celled sarcoma, while some have classed them with the lympho-sarcomata. In some of the cases leucæmia has been determined, in others pseudo-leucæmia, in still others no such complication. In this case the blood was normal. The same is true of mycosis fungoides and of lymphoderma perniciosa, where leucæmia has been sometimes observed, sometimes not. Further careful examinations are necessary, and transitional forms between these types may be found. He proposes provisionally the name sarcomatosis for these varieties.

CIRCUMSCRIBED LYMPHANGIOMA OF THE SKIN.

A number of cases of this peculiar and rare disorder have been studied and described of late years. Francis,[5] in the article before us, notes several that have come under his own observation and then attempts to group the recorded cases, partially on an anatomical, partly on a clinical basis.

CASE I is that of a male fourteen years of age, a bricklayer's apprentice. He has suffered from the disease nearly all his life, but cannot say positively when it first appeared. For the last two or three years there have been illnesses connected with the disease, occurring about every six weeks, and lasting two or three days, and consisting of great tenderness in the affected parts, and usually severe headache and nausea. The right buttock is the seat of irregular growths of the skin, varying from a pin's head to a five-shilling piece in size, in clusters which appear confluent in places and of a warty appearance at a short distance. There were very few vesicular lesions found in this case, and these only in the youngest and smallest patches; in the older and larger growths the cuticle seems thicker and the papule more solid. There were no appearances of dilated capillary blood-vessels.

The larger patches were shaved off to the level of the skin and the base touched in different parts with the thermocautery, fuming nitric acid, and salicylic acid cream. The wounds healed, and he was discharged apparently cured. In four months he was readmitted to the hospital. The part that had been excised was the seat of a raised brawny growth, of a reddish-brown color and quite firm. Numerous new patches of disease had appeared beyond the area of the old growth, consisting of isolated vesicles and groups of vesicles, like those of herpes, situated on a slightly raised base; the vesicles are translucent, covered by a firm cuticle and not easily ruptured. There have been no fresh attacks of pain. Some of the larger patches were excised and the smaller ones treated with the thermocautery.

Microscopic examination of a small papule excised, showed a dilatation of the lymphatic channels and capillaries, and in the central part the septa had broken down between them to form small multilocular cysts. The epidermis was not involved. The contents of the cysts were lymph coagula with a few leucocytes. Occasionally, at the lower part of the growth, dilated blood capillaries were seen.

CASE II is that of a male child, three and one-half years old, upon whose right leg a rash was noticed for the first time on the third day after birth, which has persisted and spread ever since. No history of inflammatory attacks in this region. The eruption is limited to the right lower leg, groin and perineum, and is distributed as an elongated streak from the inner malleolus along the line of the internal saphenous vein to the region of the saphenous opening, where it divides into two branches, one passing outward to near the anterior iliac spine, the other passing backward to the perineum and ending near the anus. The growth is composed of clusters of papules and vesicles. There are no dilated capillaries to be seen.

CASE III. Female of fifty-five years. The patient is quite sure that the region affected was natural until three years ago, when she received a severe blow in this place. The left side of the face exhibits a thickened patch of skin, with poorly defined margins, the surface of which is studded with minute translucent vesicles, with tough walls, exuding a clear fluid when

[5] British Journal of Dermatology, February, 1893.

pricked. No isolated tubercles and no telangiectasis on the face.

Case IV. Female, sixteen years. Tuberculosis of lungs. On the left side of chest a streak of nævoid growths in the mid-axillary line. The largest growth was present at birth, and of a general reddish-blue color; it is now slightly raised, but contains no vesicles, while scattered about this are many little growths composed of a single vesicle or group of vesicles, with tough walls, containing a clear fluid. One patch is covered by dilated blood-vessels and small blood cysts. No history of inflammatory attacks. The patch was excised, and there had been no recurrence a year later.

Case V. A female of seventeen, the affection being seated in the left axilla. It had existed since the age of two months.

Case VI was a female adult, part of the growth being congenital, part having appeared since birth. It was situated in the right axilla and on the right arm.

Case VII. A female child of eight. Partially congenital and this portion an ordinary nævus. The remaining portion consisted of dilated lymphatics, presenting, clinically, grouped vesicles.

Lymphangiomata which affect the skin alone, are closely allied pathologically to similar processes in the subcutaneous and deeper tissues, and with congenital elephantiasis and congenital tumors of mesoblastic origin. The author, although regarding them as very closely allied, suggests that the circumscribed lymphangiomata of the skin be divided into groups and sub-groups as follows:

Group I. Lymphangioma simplex. Of this he has been able to find but one case. It may be defined as a dense plexus of normal-sized, normal-walled lymphatic vessels, with no alteration in the surrounding tissues.

Group II. Lymphangioma cavernosum. Numerous tumors are distributed over the whole body, compressible, sometimes associated with pachydermia.

Group IV. Hæmatolymphangioma. The lymphatic and capillary blood-vessels are so closely allied that we may assume that hæmangioma and lymphangioma may not only occur in the same patient, but also in the same growth. The appearance of the growths differs widely according to the varying proportions of lymphatic and blood-vessel growth.

Sub-group (*a*) includes cases where we have originally a mixed hæmatolymphangioma, and the hæmangiomatous part undergoes retrogression, while the lymphangiomatous part proceeds to further development.

Sub-group (*b*). In this group he places those cases in which the original growth is a well-defined hæmangioma, but is subsequently associated with lymphangioma, or in which well-defined hæmangioma co-exists with lymphangioma. Nine cases belonging to this sub-group are cited.

Sub-group (*c*). Those cases of lymphangioma in which the only naked-eye evidence of hæmangioma consists in dilated tufts or striæ of capillary blood-vessels.

Sub-group (*d*). Those cases, which microscopically are shown to be hæmatolymphangiomata, but which to the naked eye appear free from hæmangioma.

From twenty-eight cases which the writer was able to collect of the fourth group (the hæmatolymphangiomata, with which we are especially engaged) he finds that of twenty-six, fourteen were males and twelve females, the favorite location being the upper portions of both upper and lower limbs. The affection is congenital (two cases), or begins early in life, in the majority of instances. There is a tendency for the eruption to take the form of streaks, and there is sometimes a distinct distribution over the nerve trunks. The part played by the nerves in its etiology is obscure; but this distribution and some other facts would point to a *possible* influence. The affection dates probably from embryonic life and is only shown when the lymphatic vessels become enlarged subsequent to birth.

An interesting point is the frequency with which these lymphangiomata are developed upon points exposed to friction and irritation, and sometimes an injury has been regarded as provoking their development. The removal of the disease surgically, or of a pre-existing nævus, has often been shown to be the signal for an acute outburst, and the same result, it is to be noted, has also followed the removal of lymphangiomatous tumors of the tongue.

Recurrent attacks of inflammation, sometimes called erysipelas, are observed in many of the cases. These attacks are often accompanied by fever and malaise, and seem to bear a close relationship with the recurrent attacks of "erysipelas" which accompany or produce an elephantiasis. They differ somewhat from erysipelas in their close limitation to the affected area. The writer suggests that they may be part of an extensive lymphangioblastic process due to some deeplying cause acting through the vaso-motor nerves. There is no evidence of obstruction of the lymphatic channels in any of these cases.

Numerous cases present, in addition to the newly-formed and dilated lymph vessels, an increase in the amount of fibrous tissue formed, so that the picture of a localized elephantiasis is presented; and it is probable that some cases of dermatolysis and pachydermia may belong in this same class, although they present when seen, no sign of "vesicles" or of lymphatic enlargement. The increase in fibrous tissue is regarded as a secondary phenomenon.

DISTINCT SPECIES OF RINGWORM.

M. Sabouraud,[6] instigated by Besnier, has been investigating the question of the existence of different species of trichophytons and has arrived at conclusions of considerable importance. His results are based upon more than 600 cultures, 100 careful clinical examinations combined with microscopical studies, about 60 cultures in drop (to determine the botanical characteristics) and 20 inoculations on men and animals.

It has been noted that certain cases of ringworm show, upon examination, small spores, while certain others always contain large spores, but no attempt at a differentiation of species from these characteristics has ever before been made. The writer shows in the first place, that these differences are constant, that is, an individual never presents at the same time both the large and the small spore, and the members of a family when several are attacked, always exhibit the same sized spore. He has further been able to differentiate two chief species of the trichophyton. The first species is characterized by small spores without mycelium and he names it the *trichophyton microsporon*. The spores are always extremely small. This form is found in the majority of cases of tinea tonsurans as seen in

[6] Annales de Derm. et de Syph., November, 1892.

children. The spores fill the hair completely, and surround it even, so as to form a sort of sheath.

The second species he calls the *trichophyton macrosporon* and it is characterized by the large size of the spores and by the fact that the hair is never surrounded by the parasite. Almost all the long and rebellious cases of tinea belong to the type characterized by the small spores.

Bacteriological studies proved that different forms of culture could be obtained from the cases containing the different varieties of spores, and this was demonstrated upon several different culture media. Cultures upon potatoes were particularly characteristic. If the cultures of the trichophyton macrosporon are examined after fifteen to eighteen days, they have a dry, powdery, flour-like appearance, which is never pure white, while the trichophyton microsporon has assumed at once the appearance of a perfectly white down. The cultures of one type never merged into nor simulated those of the other. The clinical differences have yet to be more carefully studied. In general it may be said that if the affected hair is large and broken short off, the type will be that characterized by the large spores; while if the hair is fine and not broken near the surface of the skin, the type will be that of the small spores. He considers from his studies that it is probable that the trichophyton macrosporon is the cause of most cases of trichophytosis barbæ, as also of the greater number of cases of tinea circinata (of the non-hairy parts). He thinks, too, that the trichophyton macrosporon is a parasite of the epidermis rather than of the hair. It may invade the hair of the infant, but it is far less frequent here and less rebellious.

It was found, however, that very rarely other forms present themselves, and besides these two chief forms, four other new species were obtained. Further studies with regard to them will be awaited with interest.

A series of inoculations were made by the writer upon himself, with the different species that had been isolated. The inoculations that were successful did not, however, contrary to expectation, prove the existence of a lesion peculiar to each parasitic species. It is necessary for success to render the region of inoculation thoroughly aseptic, and to inoculate by pricking, not by scarifications, which serve to mask the lesion which is to appear in a few days. It is necessary also to take care that the sweat is not acid. It was found that the trichophyton microsporon when inoculated upon the epidermis never produced more than a desquamation upon an erythematous base, and without a pronounced circular form.

Sabouraud also asserts that the parasites of the trichophyton group belong to the genus Botrytis of the mucorini and may be designated as Botrytis trichophyton.

Later, Sabouraud has published accounts of his further studies in this direction, which tend to show that the subject is a very complicated one. He has succeeded in splitting up the trichophyton with large spores into a large number of varieties, as well as into two grand divisions, those of animals and those of men. A notice of these later studies will be included in the next review.

"PERITONEAL pirouettes" is what the Philadelphia *Press* calls the objectionable dances on the Midway Plaisance.

Reports of Societies.

THE PAN-AMERICAN MEDICAL CONGRESS. SECTION FOR MEDICAL PEDAGOGICS.

C. L. SCUDDER, M.D., SECRETARY.

THE Section in Medical Pedagogics devoted its attention, at the recent meeting of the Pan-American Medical Congress in Washington, D. C., to a consideration of methods of medical teaching, a history of medical education in this country and a series of discussions on preliminary medical education. The work of the Section extended through three days of the Congress.

ON Tuesday the President, DR. J. COLLINS WARREN, traced the development of medical education in the United States.[1]

PROF. R. H. CHITTENDEN, of the Sheffield Scientific School of Yale, Professor of Physiological Chemistry, presented a valuable paper on the claims of physiological chemistry to occupy a prominent place in the fundamental preparatory training for medical education. Under the head of biology in the courses offered the student in college, is included more or less zoölogy and botany, with a comparatively large amount of dissection of typical forms, together with histology and embryology. This constitutes a presentation of the morphological side of biology. The physiological side is less thoroughly presented, and if presented, consists of muscle and nerve physiology, illustrating the mechanical side of physiology purely. All this side of physiology Professor Chittenden admitted is of the highest importance, but he wished to emphasize the fact that there is another side of physiology not much cultivated in this country as yet, namely, the chemical side or physiological chemistry. He proceeded to describe the scope of such work and the important place which it holds in the medical curriculum.

DR. HAROLD C. ERNST, of Harvard, read a paper upon the importance of bacteriological study and its proper position in the medical school course as a branch by itself, divorced from pathology, either general or surgical.

ON Monday an extremely interesting demonstration was made by DR. ZINKE, of Cincinnati, of the Cæsarean section and Porro operation. This demonstration illustrated what it is possible to do in the way of making clear, difficult problems in teaching surgery. It illustrated a method of teaching.

DR. BAYARD HOLMES, of Chicago, discussed the methods of medical education in the United States and argued for more thorough scientific training at the outset for all medical men, and the obtaining of the B.A. and M.D. degrees at one time, after a definite course of study. He believes that the tendency toward more laboratory work and less clinical teaching is of the greatest importance.

Dr. Holmes's paper, which was in some respects radical, was discussed by DR. OSLER and DR. WELCH, of Johns Hopkins, and DR. FITZ, of Harvard.

Dr. Osler said: The plan to which Dr. Holmes refers is in successful operation at the medical school in Cambridge, Eng., and is in many respects an ideal one. The student is enabled to obtain the B.A. and M.B. degrees in a little more than five years. The greater part of the academical course is taken up with the subjects of chemistry, biology and anatomy, and

[1] See page 285 of the Journal.

the student takes his B.A. degree in the Natural Science subjects. He can in this way obtain the two degrees in a shorter period of time than in the more advanced schools in this country, in which the preliminary chemical and biological work takes from two to three years before the student enters the four years' course of the medical school. I regret I cannot share Dr. Holmes's faith in the State Universities, at any rate as they are at present constituted. New ones organized would be likely to perpetuate the anomaly seen at present of separate Homœopathic establishments, and the folly of duplicating chairs in the important subjects of anatomy, physiology, surgery and pathology, when in reality homœopaths differ from us in a single detail — the treatment of medical cases — the very point upon which we all hold the most varied, often most contrary, views.

DR. F. C. SHATTUCK'S paper on methods of teaching clinical medicine, traced the connection between medical schools and hospitals, and emphasized the importance of a school owning its own hospital or at least controlling it. The necessity of both primary as well as advanced clinical teaching was dwelt upon. The value of the clinical conference was set forth.

On Thursday much was accomplished.

DR. M. H. RICHARDSON, of Harvard, illustrated by blackboard drawings, methods of teaching in anatomy and surgery. This demonstration showed conclusively the value of this rapid, free-hand picture-making in surgical teaching.

DR. VICTOR C. VAUGHAN, of Ann Arbor, Mich., read a paper on the methods of medical education. These he grouped into (1) lectures; (2) recitations from text-books; (3) laboratory instruction; (4) amphitheatre clinics; (5) medical teaching.

W. C. DABNEY, M.D., of the University of Virginia, read a paper in which he described the things necessary to a student's thorough medical equipment. He had in mind, not the training all would like, could they afford it, but the best training which the average man can afford.

DR. J. P. SAWYER, of Cleveland, gave an interesting demonstration of the action of the valves of the heart. By a series of tubes and glass windows introduced at proper places into the heart of a bullock, and by means of an electric light within the heart, it was possible, on forcing water through the tubes and heart to watch the physiological action of the valves.

PROF. W. T. SEDGWICK, of the Massachusetts Institute of Technology, presented a paper on preliminary medical education in the United States, in which he discussed in a very fresh and interesting way, the problem of the relations of preliminary medical education to the professional school. He sees in the recent step of Johns Hopkins, reason to fear the practical difficulties which may arise from such advanced requirements.

In connection with Professor Welch's paper, June, 1893, it will be interesting to read Professor Sedgwick's valuable communication.

The meeting of this Section in Pedagogy was a success; and it has done pioneer work in advancing all along the line an appreciation of the importance of the new era in medical education. It has placed on a firm footing the initial step in the direction of the study of methods of medical teaching.

We have been hitherto in the medical school lectured to; we have heard subjects talked about; there has been comparatively little *real teaching done;* hard laboratory teaching in all branches. That an intimate connection between student and patient, through the assistance of the instructor, is important, is only just beginning to be realized. The question how a given subject may best be presented to the student, what method shall be used, is coming to be regarded as of some importance. Competition in teaching — and the better scholarship of medical students to-day as compared with fifteen years ago, demand greater definiteness and more method in teaching.

The practical gain from this great Congress of foreign physicians and surgeons will be that medical education in the United States will, in the minds of foreigners, stand for something real and tangible and valuable. European nations will come more keenly to realize that the United States possesses, in Harvard University, in Columbia College, in the University of Pennsylvania, and in Johns Hopkins University, medical educational plants such as no other nation possesses. That these medical centres will before long attract the attention of students abroad cannot be doubted. It will not be beyond the bounds of possibility if, in a few years, students come from Paris, London and Vienna to enjoy the advantages which once these places alone possessed.

Recent Literature.

Nuevo Concepto de la Histología de los Centros Nerviosos. Par el DR. D. SANTIAGO RAMON Y CAJAL.

Recent Views as to the Histology of the Nervous Centres. By DR. D. SANTIAGO RAMON Y CAJAL. 8vo, pp. 68. With twenty-three illustrations. Barcelona: Henrich & Co. 1893.

These lectures, delivered at the academy and laboratory of medical sciences at Cataluña, and reprinted from the "Revista de Ciencias Medicas de Barcelona," contain a summing up of the latest researches into the fine anatomy of the nervous system. No one could better set forth the results obtained by the use of Golgi's methods of staining than the man who has been the chief pupil of Golgi in carrying on research by his methods. These lectures give the results thus far obtained, not only by Golgi and the author, but by other observers on the Continent. It is needless to say that the methods of staining first introduced by Golgi, and employed with such success by the author, have revealed to us new wonders in the marvellous structure of the nervous system. The physiological bearings of these new discoveries are as yet unknown, and their pathological relations have not yet been investigated, but they open wide fields for research. They have shown that each nerve-cell sends out many protoplasmic branches dividing into a fine net-work, and that the axis-cylinders give out various collateral branches, entablishing, through numerous reticulations, the most complex relations with other parts of the nervous system.

In the very brief space allotted to this review, the details of these researches, so clearly set forth, cannot be given. The author's work, however, cannot be slighted by any one who is interested in the anatomy of the nervous system, and we trust that it may be translated into a language more familiar to the scientific world than Spanish now seems to be.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, SEPTEMBER 28, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

REGISTRATION OF THE STILL-BORN.

IN the last number of the JOURNAL it was shown that serious defects in the system of registration of the causes of death had led to a Parliamentary inquiry and report upon the subject. A considerable portion of this class of deaths consists of still-born children.

Dr. Rentoul, of Liverpool, devoted a paper to this subject, at the meeting of the British Medical Association August 2, 1893. He states that while the laws of nearly every other country of Europe require careful registration of the still-born, at the time of their burial, the law upon this subject in England and in Russia is very loose. By correspondence, Dr. Rentoul learned that 6,321 such burials had been made in 71 cemeteries. This led to a Parliamentary investigation which resulted in returning the facts as to 17,335 interments of still-born children in England of which number 4,569 were buried without a medical certificate as to the cause or manner of death. It would have been a useful addition to this information if the facts as to legitimacy could have been obtained, but owing to the defective methods of registration, this point could not be learned.

A writer in the *British and Foreign Medical Review*, estimates from a very large number of births from different sources that the proportion of still-births to legitimate births is as 1 to 18 or 20 (in Massachusetts it was as 1 to 27 in 1890) while among the illegitimate births it is as 1 to 10. These estimates were made from a total of 8,000,000 births. Dr. Bertillon states that in Paris the chance of an illegitimate child being still-born, when compared with the legitimate, is as 193 to 100.

Coroner Hicks, of London, says: "Many children who are termed still-born are not really so, but have been born alive and died soon after, sometimes from natural causes, but also from suffocation, and other illegal means. In fact it is to be feared that many children *termed* still-born are disposed of in other ways."

Dr. Tidy says, in his "Legal Medicine": "So notorious is it that a large number of these cases could be averted, that some legislation is urgently needed."

A regular funeral for an infant costs two to three pounds (ten to fifteen dollars), while a still-born child can be buried for a shilling and six pence. Hence the inducement to register the deaths of infants born alive as still-births. One of the principal causes of criminal still-birth is illegitimacy.

The following figures show the number of illegitimate births registered, exclusive of still-births.

	Year.	Populat'n.	Total births.	Illegitimate births.	Ratio to total births per 1,000.
England	1889	29,015,413	885,944	40,627	45.9
Scotland	1891	4,033,180	125,965	9,537	75.7
Ireland	1890	4,688,426	105,254	2,827	26.9
Massachusetts . .	1890	2,238,943	57,777	1,206	20.9

As a remedy for this evil, Dr. Rentoul proposed the inspection of all still-born children by a medical practitioner before their burial. In England any body can be buried, even though there has been no medical certificate of the cause of death, or even though the death has not been registered. "A truly delightful paradise for criminals!"

Dr. Rentoul says further: "The time is surely ripe for a public protest against the gross indifference of women of all classes as shown to the infant in the womb. The present state of affairs is a public scandal. A class of political economists may say that the human animal is a glut in the market, and so, not having the money value of a pig, calf or sheep, it may be placed on that little list, from which, they hope, it never may be missed. On the other hand, our words and actions must be made to give a strong color to public thought, to instil the knowledge, that from the moment of conception there is life; that this life has a right to claim our protection; and that it is one of our first duties to bring about registration and inspection of still-born children. And if we can induce our law-makers to extend further official recognition to the child in the womb, then we, as medical practitioners, possessing the power of harmonizing law with medical science, will be able to say that we have not altogether failed in our duty in dealing with this important question."

JAUNDICE FROM MENTAL EMOTION.

THE existence of jaundice from mental perturbation was recognized by the older pathologists. Budd, in 1844, referred it to arrest of the secretion and retention of the bile in the blood.

The theory of arrested secretion was abandoned when more correct notions of the physiology of the bile were acquired, and subsequently jaundice by nervous influence was ascribed to spasm of the bile-ducts;

this, it was affirmed, might produce complete obstruction to the passage of the bile and consequent reabsorption. Frerichs, later on, recognized the occasional occurrence of this form of jaundice which may appear very suddenly or in the course of a few hours after a violent mental emotion, as vexation, anger, fright, and he thinks that it may come about in two ways:

(1) By interruptions to the circulation of the blood through the liver, arising from the influence exerted by the nerves over the calibre of the branches of the portal vein.

(2) By interruptions to the heart's action, the respiratory movements, and the renal secretion.

Talamon, in a recent number of the *Médicine Moderne* (August 23, 1893), takes up the subject in connection with a remarkable case which had lately come under his observation where a healthy woman, aged twenty-four years, having had a severe fright, became intensely jaundiced after five hours. The icterus lasted twenty-four days.

Talamon, in discussing the pathogeny of emotional jaundice, thinks that there are two objections to the current notion that it is due to spasm of the bile-ducts: (1) the suddenness of its production; and (2) its persistence.

With regard to the suddenness, there are cases on record where the jaundice has come on almost instantaneously. Villermé mentions a case where two young persons quarrelled and drew their swords; one of them suddenly became yellow, and the other, terrified at the change of color, dropped his weapon. The same writer relates another case of an abbé who suddenly became yellow on a mad dog rushing against him. Although statements of this nature may appear doubtful, still there are numerous observations which prove that under such circumstances as those alluded to, jaundice may be developed in a much shorter space of time than is wont to happen after the application of a ligature to the common bile-duct.[1] The experiments of Tiedmann and Gmelin show that bile pigment does not appear in the urine till forty-eight hours after the ligation of the choledochus; those of Audigé, that resorption of bile is not effected under thirty-six hours.

As to the persistence, it does not seem likely that a spasm of the bile-ducts can continue eight, ten, fifteen days without relaxation. In Talamon's patient the urine was loaded with bile pigment on the fifteenth day.

The theory of polycholia (Grisolle) does not alone explain the jaundice that follows mental perturbation, for the resorption is still to be accounted for.

Talamon thinks that the principal element in the pathogeny of this form of jaundice is the disturbance through nervous shock of the hepatic cell whose secretory function is augmented while at the same time it loses its property of retaining the bile which is formed, whence the immediate diffusion in the blood of the excess of bile secreted. This is, in fact, Liebermeister's explanation, who calls this emotional icterus a *cathectic* jaundice. In the normal state, he says, the liver cells retain in their protoplasm the formed bile, a property which they lose in certain morbid conditions, leaving their product of secretion to diffuse itself through the blood as lymph. There is at the same time augmentation of the absorbent surface by reason of sudden paralytic dilatation of the hepatic capillaries. This, however, only in part explains the retention of the bile, and here Talamon assumes the existence of disordered contractions of the bile-ducts extending to the choledochus. This only partially interrupts the passage of bile into the intestine, for the spasm is not continuous, and there are periods when the bile passes freely, as when the stools are deeply colored. In the case which he reports, this fact is strikingly apparent in the clinical record; the stools were clay-colored one day, and bilious the next, etc.

This is in accordance with the observations of Labadie-Lagrave, who has recently published a very complete treatise on "Diseases of the Liver." This kind of jaundice is clearly differentiated from most of the other varieties by the fact that the stools are not invariably and continuously decolorized. In a recent case of emotional icterus observed by Chauffard, the patient, after intense excitement, became jaundiced in the space of an hour; during the first five days, the choledochus remained permeable and the stools were colored and soft: the decolorization did not appear till subsequently. Labadie-Lagrave rejects the theory of spasm for these reasons, and also because histological investigation proves that the bile-ducts are very poorly provided with unstriped muscular fibres; faradization cannot efface the calibre of these ducts through their muscular fibres. He believes, with Chauffard, that if in this kind of jaundice there is any obstruction of the choledochus, this results from thickening of the bile, or from epithelial desquamation, as in simple catarrhal jaundice.

It must be admitted that the mechanism of emotional icterus is not yet completely elucidated.

[1] Frerichs: Diseases of the Liver, Am. Ed., vol. i, p. 112.

SALINES IN APPENDICITIS.

We wish to call attention to the letter from Dr. M. H. Richardson, which is printed on another page. The question of the use of saline cathartics in peritonitis has often been discussed in papers and the reports of societies in the Journal, but it is only for a short time that the importance of the appendix as the common cause of what is still often called idiopathic peritonitis has been appreciated. The diagnosis and treatment of appendicitis is still in its infancy and discussion from men who have seen much of the disease is desirable. The treatment of mild cases of colic or local tenderness, which now for the first time are recognized as pointing to the appendix, is a matter of importance to every practising physician. The number of such cases is very large, most of them recover speedily if left alone, or go to confirm the belief of the medical

attendant in his common method of treating them. But any of these cases may result in perforation. Whether the free use of salines will diminish or increase this risk will probably not be soon conclusively settled, but with a perforation existing, increased peristalsis, and fluidity of the intestinal contents can hardly fail to increase the extravasation into the peritoneal cavity, and fatal peritonitis. Dr. Richardson believes that in catarrhal appendicitis there is no hurry to produce catharsis. This might be combatted by those who believe that the presence of a fæcal accumulation favors perforation, and proof from them that this danger is greater than that arising from cathartics, should be brought forward more clearly than it has been in the past. The uselessness of treating general peritonitis by salines while a direct communication exists between the intestinal tract and the peritoneal cavity hardly admits of argument.

MEDICAL NOTES.

PROGRESS OF CREMATION. — There are in this country already thirty-two active cremation societies and fifteen crematories. In the last five years there have been over two thousand incinerations.

IMMIGRATION VIA CANADA. — As a result of Canada's refusal to allow official immigration inspection at her ports by our Government, a conference was held last week between the United States Government and the various Canadian steamship and railroad companies regarding the most efficient means of quarantine inspection of immigrants entering this country by Canadian ports. The result was an agreement by which the various companies are to provide the immigration inspectors of the United States with facilities for a rapid inspection of immigrants at the ports of landing before they are sent to their trains. Proper passengers will be given certificates entitling them to enter this country. This being a private arrangement will be allowed by the tacit consent of the Canadian authorities.

YELLOW FEVER. — On September 13th, three cases of yellow fever were discovered at Brunswick, Ga., which had not been duly reported. Examination showed that two fatal cases had already occurred in different parts of the city, but had been returned as "consumption." Two of the cases were returned refugees. A quarantine camp was at once established. On the 16th two new cases occurred, and on the 17th eleven more, and the fever was officially declared to be epidemic. On the 18th there were twenty cases and one death. Since then there have been but a few new cases each day. The usual shot-gun quarantine has been established and the greatest suffering among the inhabitants has resulted. The actual necessities of life in the way of food and clothing have been exhausted, and all communication with surrounding districts for the purpose of procuring supplies is prohibited, so that at present the people are in greater distress for want of food than from the yellow fever.

A NEW ILLUSTRATED DICTIONARY OF MEDICINE. — Dr. George M. Gould has about ready the new medical dictionary upon which he has been at work for several years. It is a new book in every way and not a revision of his older one, and in it he has adopted the new method of spelling medical and scientific words.

RECOVERY OF DAMAGES FOR MENTAL SUFFERING. — The supreme court of North Dakota has ruled that mental suffering is as properly considered in estimating damages as is physical pain. The impairment of mental powers, naturally a proper element when proved, is only to be considered by the jury when claimed in the suit and evidence.

NEW YORK.

SMALL-POX. — A considerable number of cases of small-pox have developed during the last ten days, and several deaths have occurred from it. Among those suffering from the disease are two physicians, Drs. Thomas L. Richards and Charles Norris, who are said to have contracted it from a patient at the Vanderbilt Clinic who was at first supposed to have chicken-pox. At the Clinic the case was examined by quite a number of students and young physicians. On September 21st there were thirty-two cases of small-pox under treatment at the hospital for contagious diseases, and the vaccinating corps of the Board of Health are carrying on an energetic campaign in all the tenement-house districts of the city.

ANOTHER BROKEN NECK. — A third case within three months of a patient living with a fracture of the cervical vertebræ has been reported. The patient is under treatment at the Manhattan Hospital, and more than a week has elapsed since he broke his neck in a fall of ten feet. The other two patients, whose cases have already been referred to in the JOURNAL are still both alive, and one of them has already been discharged from hospital, although still wearing an apparatus to relieve the injured vertebra of the weight of the head.

ELECTRIC CAR ACCIDENTS. — On a single day recently, September 17th, no less than three children were crushed to death by electric cars, one in New York, one in Brooklyn, and one in the neighboring city of Newark, New Jersey. On the 21st another child was killed in the same way in Brooklyn, where accidents of this kind are extremely frequent, and on the 22d the fifth death was caused by the new cable cars on Broadway, New York.

RECENT BEQUESTS. — By the will of the late Hamilton Fisk, Secretary of State during Gen. Grant's administration, $50,000 is left to Columbia College, $5,000 to St. Luke's Hospital, and $2,000 to the Bellevue Training School for Nurses.

MORTALITY. — The general health of the city still continues remarkably good, and in the week ending September 16th the lowest mortality thus far during the year 1893 was recorded. The number of deaths was only 697, which is 61 less than during the previ-

ous week, and also 61 less than in the corresponding week of last year. This mortality is 64 less than the average of the corresponding weeks of the past five years, and represents an annual death-rate of but 19.09 per thousand of the estimated population of the city. The largest decrease was in deaths from diarrhœal diseases, which numbered 83 against 138 during the previous week. Of deaths from this cause in children under five years of age there were 70, against 118 in the previous week.

Miscellany.

A PECULIAR CAUSE FOR URETHRAL HÆMORRHAGE.

A CURIOUS case of rupture of the urethra is reported by Herrick in an article on that subject in a recent number of the *Medical News*. The patient, a man of forty, accidentally swallowed an artificial tooth-plate. He was given proper diet and kept quiet for four days, when he was attacked with severe urethral hæmorrhage. On examing his rectum, the tooth-plate was found and with a little difficulty removed. The hæmorrhage from the urethra continued but no blood escaped from or into the rectum. Neither did any find its way into the bladder, as the urine passed after the first instant was clear. The introduction of a large soft catheter controlled the bleeding. There was no extravasation and the catheter was left in place for forty-eight hours. Once in the interval it was expelled by the patient, with a return of the hæmorrhage which was stopped by reintroduction of the catheter. The tooth-plate probably had punctured the urethra by one of its projecting points, making a valve-like slit which prevented the blood from passing toward the rectum, and also preserved the parts from extravasation.

THE EYE SYMPTOMS OF CEREBRO-SPINAL MENINGITIS.

THE involvement of the eye in cerebro-spinal meningitis has been long recognized, especially the conjunctival inflammation and the photophobia. Intraocular disease — choroiditis, suppurative cystitis and iritis — has been observed and reported more especially by German writers. A systematic examination of the fundus of the eyes has been but seldom carried out, however; the external conditions having alone been studied. In view of the close connection between the arachnoid space of the brain and cord, and the deeper structures of the eye along the intervaginal space, Randolph urges a systematic examination of the fundus, which he says will often reveal changes of deep significance in the choroid retina or optic nerve, though the patient has been unconscious of any eye symptoms. He reports the study of thirty-five cases of cerebro-spinal meningitis[1] of whom twenty died. Of the thirty-five cases, only seven showed a normal fundus; and of these seven one had divergent strabismus and dilated pupils, one marked nystagmus, and a third dilated pupils. There was one case of retinitis which was associated with thrombosis of the central vein. There was strabismus in eight cases, always of the right eye and divergent. Indeed the right eye showed abnormal conditions of all kinds oftener than the left. "Optic neuritis occurred in six cases, and the other nineteen cases were characterized, as regards the fundus of the eye, especially by great venous engorgement and tortuosity and more or less congestion of the optic disc." He considers the cases of neuritis to be of the descending variety involving the entire trunk of the nerve and its sheaths, and the numerous cases of congestion of the optic disk as possibly beginning stages of optic neuritis. The treatment of the consecutive atrophy was as unsatisfactory as in atrophy from other causes.

Of the value and importance of this examination in all cases, he says: "I regard the existence of eye symptoms, especially those where the fundus is involved, as indicating a particularly grave case. Wherever I found the condition which I have described very pronounced, I felt justified in speaking positively as regards the prognosis. I think that this type of eye symptoms is of more value as indicating the condition of the brain than the symptoms described by other writers, such as panophthalmitis, suppurative choroiditis and keratitis, affections which, in my opinion, would be likely to have their origin in a general infection and not likely to be the direct result of the purely cerebral changes."

[1] Bulletin of the Johns Hopkins Hospital, August, 1893.

CHARAKA-SAMHITA.

THE sixth part of this curious and interesting work contains a lesson upon emergencies which may arise in the administration of emetics and purgatives. As there are many things necessary for achieving success in giving dangerous remedies certain arrangements of the house and servants are advisable. These directions imply nothing less than the equipment of a hospital and are worth recording, as showing an early recognition of the importance of special hospital construction.

"In the first place a mansion must be constructed under the supervision of an engineer well conversant with the science of building houses. It should be spacious and roomy. The element of strength should not be wanting in it. Every part should not be exposed to strong winds. One portion, at least, should be open to currents of air. It should be such that one may move through it with ease. It should not be exposed to smoke, or the sun, or dust, or injurious sound and touch and taste and form and scent. It should be furnished with staircases, with pestles and mortars, privies and cook-rooms.

"After this should be secured a body of attendants of good behavior, distinguished for purity and cleanliness of habits, possessed of cleverness and skill, endued with kindness, skilled in every kind of service that a patient may require, competent to cook food and curries, clever in bathing or washing a patient, in rubbing or pressing the limbs, well skilled in making and cleaning beds, competent to pound drugs, patient and skilful in waiting upon one that is ailing and never unwilling to do any act they may be commanded to do. A number of men should be secured that are skilled in vocal and instrumental music, in hymning encomiums and eulogies, and in reciting verses and pleasant narratives and stories and legendary histories, clever in reading the face and understanding what is

wanted by the patient and possessed of such politeness as to become agreeable companions.

"The mansion should be stored with an adequate supply of game of all kinds. A cow should be kept, yielding copious milk, of a quiet disposition, healthy, well tended with food and drink and *kept in a fold that is properly cleaned.*

"So also should be kept little vessels and cups, larger vessels for washing the hands and face, water-jars, small jars, dishes, cauldrons, pans, hollow vessels for covering articles, ladles, mats, covers, vessels for boiling oils and glue, churning rods, beds and seats, flat vessels for holding spittle and evacuations, placed ready for use; good beds placed upon bedsteads and overlaid with white sheets and containing pillows. Articles necessary for the operations, plaster, fomentations, rubbing, vomiting, purging, application of oily or other enemata, etc. Smoking-tubes, brushes, brooms, balances and weights, oil, fat, marrow, honey, salt, fuel, water, sour gruels, whey, buttermilk, sour gruel of rice and the different varieties of animal urine should also be kept ready. . . . Having kept these articles ready for use the patient should be treated as the case may demand."

THE PROTEID POISON OF SCARLET FEVER.

MR. T. J. BOKENHAM and Mr. W. Soltau Fenwick publish, in the *British Medical Journal* for August 19th, a paper detailing their research on the pathological effects of certain substances derived from the spleen in cases of scarlatina. Their experiments were undertaken to find, if possible, some definite chemical poison in the organs of patients dying of scarlatina, which would give additional evidence as to the bacterial origin of the disease.

The spleens of fifteen patients were subjected to examination, with results of quite uniform character. From all cases there was obtained a proteid matter which may be classed among the proteoses, and is quite indistinguishable chemically from the proteoses formed during the process of digestion.

The injection experiments were upon rats, guinea-pigs, mice and rabbits. The actual injection seldom caused any local disturbance. The constitutional effects varied according to the nature of the case from which the material was derived, but each preparation exhibited a uniform action in the various animals used. The proteid was highly poisonous when extracted from an acute case which had proved fatal during the first few days with symptoms of toxæmia. If taken from the ordinary septic cases of a fortnight's duration, associated with throat suppuration, the proteid was less poisonous and uncertain in its action. When the solution of the albuminous extract from a case of scarlatina fatal in one to five days was introduced under the skin of a rat in the proportion of 0.1 gramme per kilo. of its body weight, no abnormal symptoms manifested themselves for a period of twenty-five to thirty minutes.

At the end of that time, the respirations became increased in frequency, and the animal's gait became tottering and extremely unsteady. Within a short time paresis of the hind limbs set in, the body being dragged along in an irregular and zigzag fashion by the sole action of the forelegs. With the development of this paresis the respiration became markedly slow and labored in character, the accessory muscles of the nose and mouth being called into requisition. Within half an hour from the onset of the symptoms the animal passed into a state of profound collapse. The heart's impulse was weak and its action quick, and the surface of the body was cold to the touch. After a varying period of time, gradual recovery took place.

The immediate temperature reaction varied, rats and guinea-pigs showing a brief period of subnormal temperature, rabbits a corresponding short pyrexia, with a return to normal in each case within eight or ten hours. During the few days immediately following the animals appeared to suffer no particular inconvenience, and the temperature remained at its normal level. About the seventh or eighth day, however, the appetite began to fail, the temperature rose slightly, and the body lost in weight. With only one exception (rabbit) death ensued within the fortnight, the rats exhibiting a uniform tendency to succumb about the tenth or eleventh day. The earliest period at which death occurred was the fifth day. When two injections were given on consecutive days the animal died on the fifth or sixth, and after three doses on the third or fourth. In every case where it was possible to obtain a specimen of urine the presence of albumen was easily demonstrated, and in some instances epithelial and granular casts were also found.

Post-mortem examination of the kidneys showed acute parenchymatous nephritis, with very slight interstitial changes.

The proteid obtained from the second class of cases caused much less disturbance and in no case death. In a majority of cases the kidneys showed some congestion and a granular condition of the cortex.

In order to control to some extent the foregoing experiments, two spleens derived from cases which had died from an accident were subjected to the same process, and the albuminous extract administered to animals. The material in question gave rise to no pathological effects. In like manner peptic albumoses, when injected into the circulation, never produced an inflammation of the kidney similar to that previously described.

They conclude, therefore, that in cases of rapidly fatal scarlatina a morbid product of a proteid nature is formed that can be extracted from the spleen in small quantities. This substance, when introduced into the circulation of an animal, is rapidly excreted by the kidneys, and acting as an irritant to the secreting structure, tends to produce a condition of acute parenchymatous inflammation.

THOMAS HEAZLE PARKE.

THE sudden death of Surgeon-Major Parke, which occurred September 10th, has closed the career of a man of unusual strength and gentleness of character. Few men have accomplished such arduous and varied service or acquired at so early an age such world-wide and deserved reputation.

He entered the Army Medical Department in 1880 after becoming a Licentiate of the Royal Colleges of Physicians and of Surgeons in Ireland. His first active service in the Egyptian War of 1882 gained him a medal and the Khedive's star. He served on the Nile Expedition in 1884–5, and won two distinctions for the gallantry of his work.

In 1887 he was selected by Mr. H. M. Stanley to accompany him in his expedition for the relief of Emin Pasha. The splendid character of his services during this expedition was fully recognized by Mr. Stanley, who often refers to Parke's services, and describes him as patient, cheerful and

gentle. In speaking of the events at Kavalli in March, 1889, he wrote: "This expedition possesses the rarest doctor in the world. No country in Europe can produce his equal, in my opinion. There may be many more learned, perhaps more skilful, older or younger as the case may be, but the best of them have something to learn from our doctor. He is such a combination of sweetness and simplicity. So unostentatious, so genuinely unobtrusive. We are all bound to him with cords of love. We have seen him do so much out of pure love for his 'cases' that human nature becomes ennobled by this gem. He is tenderness itself. He has saved many lives by his devoted nursing on the green sward of Kavalli, daily administering to these suffering blacks, unknowing and unheeding whether any regarded him." The unanimous testimony of every one connected with the expedition was that the great untiring cheerfulness of Surgeon Parke went far to relieve the dreary discouragements of the search for Emin. His very presence, quiet and unostentatious as it was, gave strength to the expedition.

On his return he received the full honor due him at the hands of the general public and his friends. He was given the medals of the British Medical Association, the Royal Geographical Societies of London and of Antwerp, and was made a Fellow of the Royal Geographical Society, a Fellow of the Royal College of Surgeons in Ireland, and an Honorary Member of the Geographical Societies of Belgium and Antwerp, and of the Order of St. John of Jerusalem. The British Government alone maintained a brutal inattention to his services. His work, to be sure, was not done at the bidding of the State or for the direct gain and interest of the Government; but other officers received special honors and promotions, while Parke received no thanks, no honors, no promotion from the Government, but remained a surgeon-captain until the termination of twelve years' full pay service; the only consideration shown him being that he was allowed to count his time in Africa with Stanley as full pay service. Although this was on a par with the usual contempt shown the medical profession in English military and army management, the slight was so studied and marked that Parke felt it most keenly. Too modest to desire honors for their own sake, the absence of any recognition or acknowledgment at such a time weighed upon his spirits, till he felt it almost as a degradation.

A more lasting tribute than any army honor could have been will remain for Parke, in the words of Stanley, written during the expedition, "His devotion was as perfect as human nature is capable of rendering."

Correspondence.

THE USE OF SALINES IN APPENDICITIS.

BOSTON, September 23, 1893.

MR. EDITOR: — I wish to say a word against the use of saline or other cathartics in the early stages of appendicitis, because you have recently published articles on appendicitis in which the use of cathartics, especially salines, has been advocated.

The theoretical action of cathartics in peritonitis, as given by various men, consists in an absorption and removal by intestinal drainage of the toxic products of certain micro-organisms which, multiplying in or near the peritoneal cavity, endanger life. I do not object to carrying out this theory after the appendix has been securely tied, or after it is clear that there is no danger of rapid extravasation; but in the first forty-eight hours of appendicitis I look upon the administration of salines as extremely dangerous, and as a not infrequent cause of general peritonitis and death. The reasons for this lie in the pathological conditions that exist in a very considerable percentage of cases. If in a given case there is a perforation in an appendix of large lumen, salines, by liquefying the fæces and increasing peristalsis *will cause an immediate and almost invariably fatal extravasation.* In such a pathological condition, which is not infrequent, the use of cathartics before removal and ligation of the appendix must be and is attended by most fatal consequences.

There is the same objection to the use of salines in gunshot wounds of the intestines, in perforations of typhoid fever, or in perforating ulcers of the intestinal tract generally.

In catarrhal appendicitis, without perforation — the mildest of diseases — there is no hurry to produce catharsis; should the perforation suddenly occur, by keeping the bowels quiet you avoid the danger of rapid extravasations, and give the surgeon a chance to remove the appendix before a general peritonitis makes the outlook hopeless. In a localized peritonitis, if no surgical interference has been made, the recent adhesions may be ruptured by fresh extravasations forced along by a stimulated peristaltic *vis-a-tergo*, and a general peritonitis quickly develop.

These objections to the administration of salines are based upon a very considerable experience. I may say that a majority of the fatal cases of appendicitis have been attended by extensive fæcal extravasations. I do not mean to assert that these extravasations have been caused in every instance by the administration of saline cathartics; but I do mean to state most unequivocally that they have been so caused in many cases, and that, furthermore, the existing conditions of general spreading peritonitis, far from being curable by salines, are, in my opinion and experience, beyond relief even by the most radical surgical measures, except in very rare instances. Moreover, in these extraordinary cases where, in a fully established peritonitis, recovery, with or without operation, takes place, I believe we shall find that only comparatively innocuous micro-organisms are present; on the other hand, the explanation of certain fulminating cases, even if apparently trivial at the outset, lies in the presence and rapid reproduction of germ colonies of great vitality and virulence. In either case, I am convinced, the action of saline cathartics has very little to do with the result; except in certain instances, for the reasons above given, to hasten the fatal end.

If the appendix has been tied off, or if the peritoneal cavity has been walled off with gauze, or if there is a firmly localized peritonitis, I do not object to cathartics, and I use the salines freely. I must say, however, that in a completely established general peritonitis, from whatever cause, with distention, vomiting and obstipation, in my experience, salines accomplish absolutely nothing.

To produce "intestinal drainage" after abdominal operations I think salines most excellent; and they have their use in the very beginning of a peritonitis in which there is no question of extravasation. I believe the future use of salines will be confined to these conditions.

Yours very truly, M. H. RICHARDSON.

METEOROLOGICAL RECORD,

For the week ending September 16, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..10	30.04	64	74	55	78	75	76	W.	N.E.	14	16	F.	C.	
M..11	30 30	55	61	49	59	62	61	N.	S.	8	6	C.	C.	
T..12	30.38	60	72	49	72	67	70	S.W.	S.W.	7	15	C.	C.	
W.13	30.33	62	75	50	80	81	80	W.	S W.	12	12	C.	C.	
T..14	30.23	68	77	58	85	83	84	S.W.	S.	7	12	F.	C.	
F..15	30.02	70	77	64	85	93	89	S.	S.	11	20	O.	O.	0.02
S..16	29.71	64	74	55	90	89	90	S.	S.W.	14	9	O.	C.	0.54
☞														0.56

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 16, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	697	296	21.00	11.42	11.20	1.82	4.76
Chicago	1,438,000	545	269	26.46	7.20	16.74	2 34	3.60
Philadelphia	1,115,362	364	143	17.36	14.84	5.60	4.76	3.92
Brooklyn	978,394	406	192	29.50	10.75	15.00	2.00	2.75
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	242	124	20.50	12.30	15.58	.41	2.05
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	100	44	21.00	14.00	8.00	6.00	4.00
Cincinnati	305,000	93	44	12.60	7.35	6.30	2.10	3.15
Cleveland	290,000	88	45	28.50	10.26	12.54	6.84	2.28
Pittsburg	263,709	114	50	36.08	2.64	18.48	8.80	3.52
Milwaukee	250,000	93	57	25.92	6.48	17.28	2.16	3.24
Nashville	87,754	23	4	8.70	30.45	—	4.35	—
Charleston	65,165	37	11	21.60	16.20	21.60	—	—
Portland	40,000	12	2	25.03	16.66	8.33	8.33	8.33
Worcester	96,217	32	20	43.82	3.13	34.43	3.13	—
Fall River	87,411	35	19	42.90	5.72	40.04	—	—
Lowell	87,191	38	20	36.82	18.41	31.56	—	2.63
Cambridge	71,100	28	14	35.70	3.57	17.85	—	10.71
Lynn	62,656	11	6	45.45	—	27.27	9.09	—
Springfield	48,684	14	6	28.56	—	28.56	—	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	26	14	34 65	11.55	26.15	7.70	—
Holyoke	41,278	14	9	50.00	7.14	50.00	—	—
Salem	32,233	15	4	40.00	6.66	13.33	26.66	—
Brockton	32,140	9	2	—	—	—	—	—
Haverhill	31,396	12	2	—	—	—	—	—
Chelsea	30,264	9	4	—	11.11	—	—	—
Malden	29,394	4	2	25.00	25.00	25.00	—	—
Newton	27,556	—	—	—	—	—	—	—
Fitchburg	27,146	10	5	30.00	—	30.00	—	—
Taunton	26,972	8	6	37.50	—	37.50	—	—
Gloucester	26,688	10	5	20.00	10.00	20.00	—	—
Waltham	22,058	8	5	25.00	12.50	12.50	—	—
Quincy	19,642	6	3	16.66	33.33	16.66	—	—
Pittsfield	18,802	3	1	66.66	33.33	66.66	—	—
Everett	16,585	2	1	50.00	—	50.00	—	—
Northampton	16,331	4	1	50.00	—	25.00	—	25.00
Newburyport	14,073	7	2	—	—	—	—	—
Amesbury	10,920	2	1	50.00	—	50.50	—	—

Deaths reported 3,153: under five years of age 1,435; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fevers), 782, diarrhœal diseases 453, consumption 309, acute lung diseases 216, diphtheria and croup 107, typhoid fever 88, whooping-cough 32, cerebro-spinal meningitis 23, malarial fever 11, measles 8, small-pox 3.

From whooping-cough New York 6, Chicago, Philadelphia and Brooklyn 5 each, Pittsburg 4, Boston 2, Washington, Cleveland, Fall River, Lynn and Waltham 1 each. From cerebro-spinal meningitis Chicago 9, Brooklyn 4, New York and Cleveland 3 each, Worcester 2, Washington, Milwaukee and Somerville 1 each. From malarial fever Brooklyn 7, Philadelphia 2, New York and Nashville 1 each. From measles New York 4, Chicago 3, Boston 1. From small-pox New York 3.

In the thirty-three greater towns of England and Wales with an estimated population of 10,327,846, for the week ending September 9th, the death-rate was 20.1. Deaths reported 3,980; diarrhœa 564, whooping-cough 96, diphtheria 86, scarlet fever 65, fever 62, measles 93, small-pox (West Ham and Bradford 2 each) 4.

The death-rates ranged from 13.0 in Halifax to 30.2 in Hull; Birmingham 17.3, Bradford 23.3, Croydon 14.4, Leeds 22.8, Leicester 18.1, Liverpool 23.1, London 18.9, Manchester 23.5, Newcastle-on-Tyne 21.7, Nottingham 17.5, Portsmouth 15.6.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 16, 1893, TO SEPTEMBER 22, 1893.

CAPTAIN CURTIS E. PRICE, assistant surgeon, relieved from duty at Fort Wadsworth, New York, and ordered to report to the commanding officer, Fort Porter, New York, for temporary duty at that post.

CAPTAIN WM. C. SHANNON, assistant surgeon, is relieved from duty in the office of the Surgeon-general of the Army and as assistant to the attending surgeon in Washington, and will proceed to New York City and report in person to the commanding general, Department of the East, for duty as attending surgeon and examiner of recruits in that city, relieving CAPTAIN GUY F. EDIE, assistant surgeon.

CAPTAIN GUY F. EDIE, assistant surgeon, upon being relieved from duty in New York City, by CAPTAIN WILLIAM C. SHANNON, assistant surgeon, will proceed to Washington, D. C., and report in person to the attending surgeon for duty in his office.

CAPTAIN WM. G. SPENCER, assistant surgeon, is granted six months' extension to sick leave of absence granted in Special Orders, No. 108, A. G. O., May 13, 1893.

CAPTAIN H. S. T. HARRIS, assistant surgeon, U. S. A., is relieved from duty at Fort Keogh, Montana, and assigned to duty at Fort Preble, Maine.

CAPTAIN M. W. WOOD, assistant surgeon, U. S. A., is relieved from duty at Fort Preble, Maine, and assigned to duty in Boston, Mass, as attending surgeon and examiner of recruits.

CAPTAIN FRANCIS J. IVES, assistant surgeon, ordered to proceed from Fort Sheridan, Illinois, to Chicago, Ill., and report to CAPTAIN LOUIS A. LAGARDE, assistant surgeon, in charge of the Medical Section of the War Department exhibit, World's Columbian Exposition, for temporary duty.

CAPTAIN LOUIS BRECHEMIN, assistant surgeon, is granted twenty-three days' leave, to take effect about September 17, 1893.

MAJOR HENRY MCELDERRY, surgeon, U. S. A., is granted leave of absence for one month, to take effect about October 1, 1893.

SOCIETY NOTICES.

NEW YORK STATE MEDICAL ASSOCIATION.—The tenth annual meeting will be held Monday, Tuesday, Wednesday and Thursday, October 9, 10, 11 and 12, 1893, at the Mott Memorial Hall, 64 Madison Avenue near 27th Street, New York City.

CHARLES E. DENNISON, *Secretary.*

THE AMERICAN PUBLIC HEALTH ASSOCIATION. — The next meeting will be in connection with the International Congress of Public Health, at the Art Institute Building, Chicago, Ill., October 9–14, 1893. First meeting of the Congress, October 9th, at 8 o'clock, P. M.

President of the Congress, Dr. Samuel H. Durgin, President of the American Public Health Association. Sir George Buchanan has promised to accept the position of Honorary President for Great Britain, and Sir Charles Cameron has accepted the Presidency of the Section on Municipal Health Service.

IRVING A. WATSON, *Secretary, American Pub. Health Ass'n.*

VERMONT STATE MEDICAL SOCIETY.— The eightieth annual meeting will be held in Rutland, October 12 and 13, 1893.

C. S. CAVERLY, M.D., }
G. H. FOX, M.D., } *Committee of*
E. M. POND, M.D., } *Arrangements.*

RECENT DEATHS.

WALTER VOUGHT, M.D., died in New York, September 25th, aged thirty-one years. He was in charge of the Fire Island Quarantine Station during the cholera quarantine last year.

HORATIO NELSON PAGE, M.D., M.M.S.S., died in Milwaukee, Wis., September 16th, aged eighty-seven years. He graduated from the Dartmouth Medical School in 1831.

WILLIAM B. TOWLES, M.D., died in Charlotte, Va., September 18th, aged fifty-three years. He was professor of anatomy in the University of Virginia.

SURGEON-MAJOR THOMAS HEAZLE PARKE, who was chief medical officer under Stanley in the search for Emin Pasha, died at Alt-na-Craig, Scotland, September 10th, aged thirty-six years.

SEVERIN WIELOBYCKI, M.D., died in St. John's Wood, London, September 7th, aged one hundred years and eight months. He was born in Poland and served as a cavalry officer in the long struggle for national freedom. He was offered an escape to Great Britain and went to Edinburgh, where, after great privation, he succeeded in obtaining his medical degree. Probably the only occasion when a University has officially congratulated a graduate on finishing a century of life was that of Wielobycki's birthday last January.

BOOKS AND PAMPHLETS RECEIVED.

Address before the Harvard Medical Alumni Association, June 27, 1893. By J. M. DaCosta, M.D., LL.D. Boston: Geo. H. Ellis. 1893.

A Lecture by Victoria Claflin Woodhull (Mrs. John Biddulph Martin), in the Boston Theatre, Boston, U. S. A., October 22, 1876, before 3,000 people, The Review of a Century; or, the Fruit of Five Thousand Years. Reprint. 1893.

Address.

PULMONARY TUBERCULOSIS WITH ESPECIAL REFERENCE TO ITS PROPHYLAXIS, HYGIENIC AND CLIMATIC TREATMENT.[1]

BY EDWARD O. OTIS, M.D., BOSTON.

"A sick man helped by thee, shall make thee strong." —*Browning.*

Fellows of the New Hampshire Medical Society: Do not think that I hold in light esteem the honor you have done me in inviting me to speak to you to-day, because I have chosen the old, and perhaps to many of you, uninteresting subject of Pulmonary Tuberculosis. I have chosen it with deliberation and for several reasons. As you are only too well aware, it is one of the most frequent diseases you have to contend with in this climate. Refer to the report of the State Board of Health for 1891, and you will find that of all the deaths occurring in this State from 1884 to 1890, pulmonary tuberculosis constituted 11.99 per cent of them, or 787 each year. If we take the minimum estimate put upon the economic value of a human life, we shall find that $3,935,000 are annually lost to this State by the ravages of this terrible disease. Of the loss in intellectual and moral influence, not only to this State but the whole country, who can estimate that, or measure the heart-breakings of the sorrowing friends who remain. None of us have forgotten the alarm and almost panic that ensued last summer when it was telegraphed abroad that cholera had arrived in New York; and yet, as the author of the "Causes of Death" in the report of the State Board of Health to which I have referred you, says, "Even the terrible epidemics of cholera and yellow fever that rage in some parts of the world are not so destructive to human life as consumption is in the aggregate." This fact, alone, is a sufficient reason why, not only at this meeting, but at every meeting, a portion of your time and your serious attention should be given to the consideration of this disease. Again, the attitude of physicians is slowly changing regarding the prognosis in this disease, and from a state of extreme pessimism, they have entered upon one of more hope. That phthisis can be and is cured, should ever be in the mind of the physician as he treats his cases of this disease. Further, the advances in successful treatment which have been made are rather, in my opinion, hygienic and climatic than medicinal; and to-day there is no drug or combination of drugs or any substance, animal, vegetable or mineral, which has been proved to exercise a curative influence upon the disease. Having devoted considerable time, and travelled somewhat extensively in the study of climate as applied to this disease, I may be in a position to say something of value to you upon this subject, or at least, I can give you my conclusions. Moreover, I have something to say to you regarding the matter of proper respiration, upon which I have been making some investigations the last winter; and I hope to make you share my conviction that the average civilized man does not know how to breathe properly, and that proper breathing is like proper eating, an acquired art. I am desirous, also, of impressing upon you, if I am able, the duty and responsibility of the practitioner in averting this disease by proper prophylactic measures. For these various reasons, then, I have chosen this subject, which for many years has been one of profound interest to me. And you, also, to whom I speak, have all, alas! had large experience in dealing with this dire disease. What New England physician has not?

There are certain general facts which I hold as true, regarding pulmonary tuberculosis; and it may be as well for me to present them axiomatically at the outset:

(1) Pulmonary tuberculosis is, in the greater number if not all cases, a disease of in-door life and impure air.

(2) The first downward step towards pulmonary tuberculosis is impaired general nutrition.

(3) Improper breathing and insufficient lung ventilation may finally result in pulmonary tuberculosis.

(4) Pulmonary tuberculosis is inheritable in the common acceptation of the term.

(5) Pulmonary tuberculosis can be cured or arrested in not an inconsiderable number of cases.

(6) There is no specific for the disease.

(7) The successful treatment is hygienic and climatic; and under hygienic I include lung gymnastics.

(8) Pulmonary tuberculosis is capable of being cured or arrested in any and all climates, but more readily and surely in some than in others.

As we proceed to discuss our subject, let us bear the above axioms in mind. Preventive medicine in the future must and will become a far greater part of our art than it is at present, until we finally arrive at the wisdom of the Chinese, and receive our meagre honorarium for keeping our patients well instead of fighting a too often losing battle with outraged nature. Now and here, however, I believe we can and ought to do far more than we are doing to prevent pulmonary tuberculosis. "Let us set an example," says Dr. von Ruck,[2] "for integrity of purpose to allow no opportunity to escape, which may aid in restricting and preventing the ravages of a disease which is, of all diseases, the most prolific cause of death, and claims its victims by the hundreds of thousands every year, respecting no one, not even our own persons or families."

Every general practitioner, particularly in the country, has his families, of which, as years go by, he grows to have a pretty thorough knowledge. He learns their inherited tendencies, and becomes familiar with their habits of life and environment. It is this kind of knowledge, in fact, which renders the family physician so much more valuable to his patients than the most skilled practitioner without it. To know the family, their power of resistance to perturbing causes, what they eat, how they breathe, sleep and work, what they wear, and the kind of air they feed their lungs upon, makes a sum total of knowledge which enables the physician to warn and advise with wisdom and effect. Moreover, it places a certain responsibility upon him to use this knowledge when he sees the laws of health disregarded through ignorance or wilfully. As he goes his rounds he will not infrequently see, in the families of his clients, those who, though they may not be conscious of any especial or great falling off in health, yet are perilously near the danger-line of pulmonary tuberculosis. In one, for example, he will observe that the nutrition is defective from insufficient or improperly prepared food. In another that lung ventilation and aeration is inadequately performed, and

[1] An Oration delivered before the New Hampshire Medical Society, June 20, 1893.

[2] The Prophylaxis of Tuberculosis. Reprint from the Therapeutic Gazette, April 15, 1890.

air deficient in pure oxygen is being breathed. In a third he will see that assimilation is imperfect and the circulation poor from a lack of physical exercise. These conditions will generally suggest the advice to be given, and it seems to me that the faithful physician should ever be on the alert to detect these deflections from the normal standard of health, and by timely advice and insistence upon change in habits or environments avert the impending danger. An open fireplace in the winter sitting-room; sufficient sunshine in both sitting-room and bedroom; better and more nutritious food; deep breathing and practice in chest expansion; physical exercise of various kinds, bicycling, swimming — a most excellent exercise for lung expansion—tennis, rowing, mountain climbing; change from a damp dwelling to one high and dry, may be the prophylactic remedies to be advised for one or the other condition. Perhaps I can as well emphasize here the great utility, in my opinion, of free-hand physical exercise. No apparatus is required; but a few minutes may be devoted to it daily, and yet the results are both substantial and striking.

Again the physician finds his opportunity for his prophylactic advice when the individual presents himself as a patient, complaining of a group of symptoms which go to make up that condition which has been aptly termed the pre-tubercular. He complains of general malaise, want of vigor, loss of appetite, digestive disturbances, irregular sleep; and the physician will note loss of weight, superficial breathing and a rapid heart — symptoms with which you are all familiar, and which are so often the vedettes of approaching tubercular trouble. If you examine the chest, the result will generally be negative, or at most only a little roughening of the respiration. If you watch the respiration, or better, measure the lung capacity by the spirometer — which I wish might be done in every examination of the lungs — you will find it below the average, and the respiratory muscles poorly doing their duty. The chest expansion will also be defective. This is, perhaps, a typical case of a large group with which you are all familiar in your daily experience. It is a pre-tubercular state; and, unless so recognized and proper prophylactic measures taken, will inevitably enter the active tubercular condition. It is, moreover, often readily respondent to proper management.

Let me now enumerate a set of interrogatories for the physician to put to himself in his prophylactic endeavors to avert this disease:

(1) Nutrition: Is proper food and of sufficient quantity taken? and is digestion and assimilation good?

(2) Respiration: Is the breathing full and free? and is there good action of the respiratory muscles?

(3) Air: Is pure air and of sufficient quantity supplied? This is of especial importance in sedentary indoor occupations.

(4) Physical exercise: Is sufficient and proper physical exercise taken to ensure good respiration and circulation and proper elimination of waste products?

(5) Situation of dwelling: As to character of soil (damp or dry) and drainage.

(6) Light and sunshine — with especial reference to in-door life: Do working-room, sitting-room and bedroom have sufficient light and sunshine?

(7) Clothing and bathing: Is the clothing sufficient and of proper texture? and is bathing sufficiently frequent, not only for cleanliness, but to give tone and vigor to the peripheral blood-vessels?

(8) Mental condition: Do worry and a depressed mental state exist?

Other points will suggest themselves to you, I dare say; but the above seem to me the most important ones to be taken into consideration, bearing in mind that a disregard of any one or a combination of them opens a possible avenue for the entrance of the dreaded bacillus. It is not my purpose to exhaustively discuss each one of them, and, indeed, it is quite unnecessary before an audience of intelligent physicians; but I do desire to consider, somewhat in detail, the matter of proper respiration, a subject upon which I have been making some investigations for the last year or two.

Nature when left to herself is a very wise mother, and generally sees to it that what she creates properly performs its functions, be it a plant or man. But civilization — so-called — sometimes woefully interferes with her and thwarts her evident intentions. The savage, obeying nature, lives out of doors, bathed in sunshine and fresh air. He is physically active, which compels him to breathe deeply and fully. He runs, swims, climbs; all of which exercises are excellent for producing large lung capacity and ample chest expansion. Not so, however, is it with the civilized man: he leads, more or less, an in-door life where the air is often impure and insufficient. He takes too little or no physical exercise, so that he almost forgets that he has muscles which need to be used for their own integrity and that of the rest of the body; and proper respiration has come to be a forgotten natural art, and must be an acquired one, if he possesses it at all. The civilized man has forgotten how to breathe properly, and the civilized doctor seems to have forgotten to teach him.

Few of us, I believe, thoroughly ventilate and inflate our lungs; and I am of the conviction that this defect is an important and frequently overlooked factor in the causation of pulmonary tuberculosis.

Let me call your attention to some measurements of chest dimensions and lung capacity:

CHEST MEASUREMENTS.

Girth of Chest (muscular).	*Repose.*	*Inflated.*	*Difference.*
Men: Average of E. O. Otis. 1,000 measurements between 16 and 40 years of age	34.0 in.	36.1 in.	2.1 in.
Average of Dr. Hitchcock of Amherst College, 8,000 meas.	34.6	36.5	1.9
Average of E. Hitchcock, Jr., of Cornell College, 15,000 meas.	34.5	36.3	1.8
Women: Mt. Holyoke and Wellesley students. Measurements of Miss Wood and Dr. Mary Colton	29.5	31.5	2.0
Respiratory Chest.			
Men: Average of E. O. Otis. 1,000 measurements	31.1	33.1	2.0
Women: 50 per cent. of 1,500 Wellesley students. Miss Wood	24.6	27.2	2.6
Depth of Chest.	1,000 m.	112 m.	
Men: Average of E. O. Otis	7.3	8.2	0.9
Breadth of Chest.			
Men: Average of E. O. Otis. 150 measurements	9.6	10.8	1.2
Depth of Chest.			
Women: Fifty per cent. of 1,500 Wellesley students, Miss Wood	6.9	..	..

CAPACITY OF LUNGS.

Men.	*Cubic Inches.*
Average of E. O. Otis, 1,000 measurements	240.6
Hitchcock, Sr., 8,000 measurements	230.0
Hitchcock, Jr., 15,000 measurements	236.6
Women.	
Mt. Holyoke and Wellesley students, measurements of Miss Wood and Dr. Mary Colton	145.8
Fifty per cent. of 1,500 Wellesley students, Miss Wood	150.3

COMPARISON OF THE VITAL OR LUNG CAPACITY AND THE AMOUNT OF AIR EXHALED AFTER AN ORDINARY QUIET INSPIRATION. AVERAGE OF E. O. OTIS, 150 MEASUREMENTS.

	Cubic Inches.
Vital capacity or amount of air exhaled after a full inspiration	230.5
Amount of air exhaled after an ordinary quiet inspiration	129.3
Difference (complemental reserve air)	101.2
As given by Hermann	97.6

The tables just given are the results of my own investigations and of the comparison of them with those of several other investigators. Let us now consider their significance. These measurements independently taken by different examiners are so nearly alike, that we can assume, I think, that they are approximately correct. The average man, then, should increase the circumference of his muscular chest, by full inspiration, from 1.8 to 2.1 inches, and of his respiratory chest 2 inches; and the average woman 2 to 2.6 inches and 2 inches respectively. Moreover, the average vital or lung capacity may be regarded as between 230 and 240.6 cubic inches for men, and between 145 and 150.3 cubic inches for women. Further, the depth of an average man's chest may be taken as 7.3 inches in repose, and of a woman's 6.9 inches; and the breadth in men 9.6 inches in repose and 10.8 in full inflation. Consequently the antero-posterior and the transverse diameters of an average man's chest ought to increase about an inch in full inspiration. You will also observe that the so-called "complemental" and "reserve" air is about 100 cubic inches.

In making a physical examination of the chest, I believe we shall often gain valuable information, as to the manner respiration is being performed, by taking these different measurements and comparing them with the averages. Moreover, long before we obtain signs of disease by percussion and auscultation, an examination of this kind may, if the measurements are much below the average, arouse a suspicion of future trouble and suggest prophylactic measures in the way of deep breathing and exercises in lung expansion. Again, so long as the lungs fall short of full expansion in ordinary quiet breathing by about 100 cubic inches, once or twice, at least every day, full, deep inspirations should be taken so as to thoroughly ventilate the lungs; and this is especially needful for those who lead sedentary lives. The performance of this act is easy, and requires but a few moments each day; indeed, it is accomplished unconsciously by any active exercise, such as running, swimming, tennis playing, and the like. With those, however, who take little or no active exercise and follow sedentary occupations, it must be a matter of conscious exertion. With the hands upon the hips and the shoulders thrown back, standing either out of doors or in a well-ventilated room, one should slowly fill the lungs to their utmost capacity, and, after a moment at rest in this condition, slowly exhale. It is also of assistance to gradually raise the out-stretched arms over the head while one is inhaling, thus aiding the intercostal muscles, and so, more thoroughly opening out the chest. It is a significant fact that, after deep, full breathing and chest expansion has been practiced for some time, the "complemental" air is reduced, and the difference in the two diameters, in repose and full inspiration, is lessened; indicating that a habit of constant and permanent chest expansion has been established; which means, other things being equal, a valuable safeguard against pulmonary tuberculosis. In examining young men of average health, but of sedentary occupations, I have frequently detected the crepitant râle on deep inspiration at the lung apex, indicating not a diseased condition but simply the pulling apart of agglutinated lung cells, which in the insufficient lung expansion have fallen into disuse. May not this be one of the reasons why the apices of the lungs are so frequently affected?

The importance of this subject of proper lung aeration and chest expansion has been overlooked, it seems to me, both by the general practitioner and the specialist. May I have sufficiently excited your interest in it to cause you to bear it in mind when you are making a physical examination of the lungs, as well as when you cast a professional eye upon those who fall under your observation.

Let me next call your attention to some points in the hygienic and climatic treatment of pulmonary tuberculosis; but first, however, let me say a word as to the curability of this disease, or more accurately, its arrest. Do not be sceptical upon this point, but approach your patient with the hope born of conviction.

"Dr. Coats,"[3] says Fowler, "as the result of the careful scrutiny of post-mortem examinations, has come to the conclusion that about 23 per cent. of the persons who die of disease unconnected with tuberculosis have been, at a former period of life, affected with some form of internal tuberculosis."

Professor Brouardel[4] found evidence of cured tubercle in the apex of the lung in 60 per cent. of those over thirty years of age whom he examined after death from violence.

"In 200 autopsies in which this point was especially examined, Harris found 38.8 per cent. in which there were relics of former active tuberculosis."[5]

Of 1,000 cases in the practice of Dr. Williams,[6] 198 died; and of the 802 alive, 285 or 35.5 per cent. were classed as well; 293 or 36.6 per cent. as tolerably well; the well and tolerably well thus comprising 72 per cent. In a private letter received from Dr. O. Peters, of Davos, Switzerland, which is the famous high climate sanatarium for the treatment of this disease, he says that after eleven years of practice, his experience shows that a perfect cure is obtained in 20 to 25 per cent. of the cases and great improvement in 60 per cent.

The pathology of arrested phthisis is fascinating, but I have not time to consider it here. I will only say in brief that it occurs by the formation of a barrier of fibroid tissue. Let me, however, refer you to the record of 177 autopsies for other diseases in which evidence of arrested pulmonary tuberculosis was found in Dr. Fowler's[7] paper upon arrested phthisis.

Given then a case in which we find evidence of pulmonary tuberculosis, bacilli in the sputum, percussion and auscultatory signs, and all the other confirmatory symptoms, how shall we treat it? Let us suppose, moreover, that it is an incipient or not far advanced case in which treatment is of most avail. Let me repeat what I said in the beginning, that there is no drug or medicinal remedy which, in my opinion, exercises more than a very secondary influence upon this disease, neither creosote nor tuberculin nor the hosts of

[3] Fowler: Arrested Pulmonary Tuberculosis, London, 1892, p. 12.
[4] Ibid., p. 13.
[5] Osler: Practice of Medicine, 1892, p. 250.
[6] C. B. J. Williams and Chas. Theodore Williams: Pulmonary Consumption, 1887.
[7] Fowler: Arrested Pulmonary Tuberculosis, London, 1892.

other remedies or combinations of remedies seem to me to have stood the test of extended experience in producing definite favorable results. Our treatment, then, must be hygienic and climatic; let us become thoroughly convinced of this.

Food, exercise, fresh air, sunlight, rest and peace of mind must be our reliance in successfully battling with this disease as indeed with so many others. "As I watch the better medical practice," says Dr. Mitchell,[8] "I see a tendency to rely less upon mere drugs and more and more sharply to question their value — you will be struck, as I have been, when you come to read the books of the great masters, dead or living, with the great stress laid upon habits of living, what shall be eaten, diets, exercise, clothing, hours of work and rest." Climatic treatment, to which I shall call your attention directly, is a potent factor and of invaluable aid in consummating the cure or arrest, yet in any climate, by utilizing all its capabilities, there is much hope of success.

With regard to the diet, you cannot exercise too much care. Prepare a dietary yourself, and be sure that your patient eats regularly good, well-cooked, nourishing food. All sorts of special and exclusive diets have at one time or another been recommended, but I believe a plain mixed one to be the best. See to it that the material and cooking are good and not that usually found in the New England country household. Often the meals can be multiplied to advantage. In Dr. Turban's sanitarium in Davos, which I had the pleasure of visiting, the patient obtained five meals a day, as follows: First, coffee, tea, chocolate or cocoa with bread, butter and honey. Next a lunch of bread, butter and milk. Third, dinner consisting of five or six courses. Later, afternoon coffee with bread, and finally an evening meal of three courses. Milk was also furnished whenever desired.

Of primary and vital importance is out-of-door life. "I am well satisfied," says Dr. Austin Flint, "that here is the foundation for the successful management of pulmonary tuberculosis." "Out-of-doors," "out-of-doors," "out-of-doors" should ever be the watchword of the tuberculous individual. He should establish a habit of out-door living, and whatever may be the climate and weather, he should go out every day. "Neither the cough, the fever, the night-sweats, nor the hæmoptysis contraindicates this rule," says Osler.[9] Says Lindsay:[10] "There is now a vast mass of evidence which conclusively proves that consumption is comparatively rare among those who follow an out-door life under normal and healthy conditions; that it is comparatively common among those who live habitually in-doors; that it attains its maximum incidence among those whose occupation involves prolonged confinement in a vitiated atmosphere." This statement he verifies with figures and statistics.

It is hardly necessary for me to give you illustrations of the happy effect of out-door life upon this disease; you all, no doubt, can recall many examples in your own experience; I will, however, call your attention — for you may not have seen it — to the charming account, narrated by the late Dr. Henry I. Bowditch, of the chaise ride of his father through New England for the cure of his tubercular trouble.[11] "The first day," he says, "after a drive of twenty-five miles he was so much exhausted and spat blood to such an extent, that the landlord of the hotel at which they put up, advised his friends to take him back home to die." He pluckily continued, however, and when he finally reached home after a journey of seven hundred and forty-eight miles, he was in much better health than when starting; and by means of walks of a mile and a half to two miles taken three times a day during thirty years of his life, all pulmonary troubles disappeared. One illustration coming under my own observation: a sea-captain, below middle life, apparently well and strong, gives up his profession and out-door life and enters upon business connected with a railroad in a large city. He attains a high position and accumulates wealth, but dies of phthisis at about middle life. His son, also in his father's business, dies of the same disease at an early age. Here we have a change from an out-door life in the pure sea air to in-door life in the vitiated city air — and the result, pulmonary tuberculosis.

Of course, some climates are much better adapted for out-of-door life than others; but here in our own severe and changeable climate, the chances of recovery or arrest of the disease are infinitely better, in my opinion, by the out-of-door treatment than by an in-door life with the dangers of impure and often overheated air. "I fully believe," says Dr. Bowditch, "that many patients now die from want of this open air treatment." "For years," he says, "I have directed every phthisical patient to walk daily from three to six miles; never to stay all day at home unless a violent storm be raging. When they are in doubt about going out, owing to bad weather, I direct them to solve the doubt not by staying in the house, but by going out." If the patient is too weak to walk, let him be well protected and placed out of doors whenever there is sunshine and the wind is from a dry quarter, whether it be summer or winter; and keep him out for hours at a time. Let him sleep and eat there. I well remember the row of couches with their little tables beside them, which I saw at Davos at the sanitarium I have before mentioned. If we are unable to send our phthisical patients to a more favorable climate, let us utilize to the utmost the weather we have at home, and harden them to endure its frequent and great variations. Out-of-door life in this climate has cured phthisis; let us not forget this. I have often thought that if the same insistence to an out-door life should be practised at home that prevails in the various health-resorts, we should obtain far better results than at present. I wish, indeed, we all could visit some model sanitarium for the treatment of pulmonary tuberculosis, such as the one of Dr. C. von Ruck's at Asheville, or Dr. Trudeau's in the Adirondacks, and then come home and apply the same painstaking care and methods in the treatment of our own phthisical patients, not only as regards out-door life, but in all the detail of their management.

(To be continued.)

[8] Lecture on the Conduct of Medical Life, University Medical Magazine, May, 1893.
[9] Practice of Medicine, p. 256.
[10] The Climatic Treatment of Consumption, London, 1887.
[11] Transactions of the Sixth Annual Meeting of the American Climatological Association, 1889.

THE value of negative information was well stated by a famous French savant, of whom a lady asked an apparently simple question in science. He replied: "Madame, I do not know." "Well, what is the use of all your scientific education if you cannot tell that?" said she. "Madame, to be able to say I do not know."

Original Articles.

INTUBATION OF THE LARYNX IN PRIVATE PRACTICE: RESULTS IN SEVENTY-EIGHT CASES.[1]

BY CHARLES M. WHITNEY, M.D.

During the seven years that intubation has been before the medical profession, evidence has been slowly accumulating as to its value in the treatment of membranous obstruction in the larynx. It was but natural that an operation of such apparent simplicity and freedom from danger should be received with enthusiasm as a substitute for the older and severer operation of tracheotomy.

The experience of many observers in different parts of the world has placed us in a position to-day to calmly judge of its merits as an operative procedure.

The frequency and fatality of laryngeal obstruction in children is so great that a clear understanding of the elements which guide us in a selection of one or the other operation is of the greatest consequence.

The majority of the reported cases of this operation have been performed in the large metropolitan hospitals, where the cases could be watched with the greatest care and where careful nursing was available. While this is of value it also follows that the children are usually taken to the hospital only after every method has been exhausted to expel the membrane and when suffocation is imminent.

The resulting weakened condition materially affects the outcome of either operation. Where one can watch the child from the onset of the symptoms, an earlier operation is possible, and the strength can be saved to fight the disease.

It is in this class of cases that I desire to present the result of five years' experience in the performance of laryngeal intubation.

Every practitioner of large experience has met with cases where a child suffering with membrane in the larynx, was growing steadily worse, and where the parents would not permit it to be removed to a hospital where an intelligent selection of one or the other method could be made, nor would they submit it to the cutting operation. In this class of cases, there was nothing for the physician to do but to watch the child slowly suffocate, until the originality and patient investigation of Dr. O'Dwyer placed at his disposal a method of relief.

It is here that intubation occupies a field peculiarly its own and no comparative statistical tables can show the number of lives which have been saved by it. My own experience has fully substantiated this statement.

Not the slightest objection has ever been made to the operation or to a re-intubation when the tube has been coughed out.

A case illustrating this fact came to my notice some three years ago through the kindness of Dr. Record, of Wollaston. A child of three years was attacked by diphtheria and rapidly developed symptoms of laryngeal obstruction. An operative relief was recommended and a surgeon was summoned to perform the operation. At the last moment the mother refused to permit the operation. As no tubes were available I was summoned to do an intubation. The operation was easily done and the child completely relieved. The relief continued for two days, when it perished from septic poisoning.

Intubation, then, has for its first advantage availability.

Any one who has watched a child with the disease in question, and has noted the labored breath, the restless tossing and gradual change in color, must agree that both exhaustion and carbonic-acid poisoning are very important elements in deciding the result of either operation.

In the beginning this change is so gradual that the parents are loth to believe that a little delay will not result in an amelioration of the symptoms, and thus postpone an operation which is so severe as tracheotomy. An operation so simple, so painless and bloodless as that under consideration is readily consented to and hours of suffering are saved the child and the strength is by just so much the greater.

This, then, is the second advantage of intubation that it can be done early. To safely perform a tracheotomy at the home of the patient, at least one trained assistant is needed and one man with steady nerves to manage the anæsthetic if one is used and to steady the head.

Intubation, on the other hand, can be performed by one moderately skilful with aid of two persons of ordinary intelligence, one to hold the child, the other to manage the gag. Several times I have inserted a tube with only the parents to help me, and in one instance the original operation was done on a child of thirteen months with the aid of two nervous women. In such a case the most ardent advocate of tracheotomy would find its performance rather difficult.

By these comparisons I do not desire to convey the impression that tracheotomy is always extremely difficult and intubation extremely easy for it is far from being true. Any one who has intubed a young child, gasping for breath, whose small pharyngeal space prevents or prolongs free manipulation and in whom the attempt to enter the larynx produces an alarming degree of cyanosis, will soon realize that any operation to relieve the condition cannot be simple and easy, but is fraught with the gravest anxiety and responsibility. For this reason no operation should be done without a careful consideration of all the elements in the case. Neither should be done as a routine procedure, but each performed in suitable cases. Certain other self-evident advantages belong to intubation: freedom from shock and hæmorrhage, absence of new infecting surfaces and resulting cicatrices, rapidity of performance, the opportunity of breathing air warmed by the natural passages.

My own experience in this operation comprises its performance in 78 cases, all in children under ten years of age. Divided according to age there were:

	Cases.	Recoveries.
Under 1 year	2	0
1 to 2 years	12	3
2 to 3 years	18	6
3 to 5 years	20	5
5 to 10 years	26	12

As regards sex, 48 were males, 30 females; of these, 26, or 33 per cent., recovered.

As these cases were nearly all seen in consultation with various physicians, they have presented a wide variation as to the time the operation was done. In some it was done early, in others very late, and taken altogether they represent a fair average of cases which

[1] Read before the Surgical Section of the Suffolk District Medical Society, April 5, 1893.

one meets both as regards severity and time of operative relief. Earlier operative relief would have saved even more lives.

These cases have been of the greatest interest on account of their occurrence in such varying surroundings. In some the most skilful nursing was available, in others only the simplest attentions were given. In all, the result was so relatively satisfactory that I desire to consider somewhat in detail the elements which have a great deal to do with the success of this operation.

The first important question which arises is, When has the proper moment arrived for operative interference in these cases? I am sure there can be no difference of opinion as to the advantage of early relief. When a child suffering with diphtheria develops a croupy cough with hoarse voice and harsh respiration, and when in spite of the usual treatment has obtained no relief, but is gradually growing worse, the intercostal, supra-sternal and supra-clavicular spaces are beginning to retract, then no advantage is to be gained by longer waiting.

This may take a longer or shorter time, but the persistent and increasing retraction is one of the most important symptoms, and longer waiting is at the cost of the child's strength. The steady progression of the disease with no intervals of relief, together with its gradual onset serve to distinguish it from catarrhal laryngitis, or spasmodic croup, especially in those cases where no exudation is present upon the fauces.

The instruments which are familiar to nearly every one to-day, consist of the introducer, the extractor and gag, varying sizes of tubes with their obturators.

It has been a matter of surprise and regret to me, as doubtless it has to many others, to find the instruments so carelessly made that they are often unsafe for both operator and patient. The original gag devised by Dr. O'Dwyer is difficult to manipulate, and has been replaced in most of the cases, sold now, by a straight one which works with a spring and ratchet. This, for example, is too light, the blades are made of soft iron, the spring and ratchet too weak, which allow the blades to be forced together, or to be snapped quickly when touched by the nervous hand of an untrained assistant. Twice, with the gag furnished in my first set, were the blades forced together while in the mouths of three-year-old children. In these cases the ratchet held well enough but the soft iron of the blades permitted their closure from the strong pressure of the jaws. The danger of diphtheritic infection from a wound in the finger is too great to allow us to consider such a matter lightly. The shank in the introducer is not strong enough, and frequently a bend is produced which interferes with the sliding of the fork which pushes the tube from the obturator.

The thread which unites the obturator to the introducer wears away so rapidly that after a short time the tube turns half-way round when screwed on tightly. Experience at the City Hospital has shown that this part may even break — a very undesirable accident.

I have considered the tubes to be fairly well made, aside from occasional deviations from the correct shape, but a recent experience has taught me that they, too, have the same faults of careless and poor workmanship.

In one of my most recent cases, after removing a five-year-old tube from a dead child, a matter of no difficulty whatever, I was surprised to find an opening had been made in the posterior wall of the tube just below the collar, which was produced by the moderate pressure of the jaws of the extractor. What the effect of the accident would be in extracting from a living child is at once apparent. The walls of this tube were as thin as paper.

I have attempted to overcome some of the disadvantages of these instruments by certain slight modifications. The obdurator is so easily removed from the tube when the latter is held in position by the finger, after introduction, that I have omitted the apparatus for removing it and have had the shank made larger and stiffer, and the thread hardened to prevent wearing. As the sizes below two years will not admit a large thread I have two shanks which are easily interchanged. In the original introducer, the angle made by the shank and obturator is a trifle more obtuse than a right angle. As the larynx is directed slightly backward, with this instrument the handle must be elevated so that the tube will easily enter it.



I have made this angle a trifle more acute than a right angle so that the tube will be directed forward and more easily enter the larynx. The joint in the obturator should be carefully oiled to prevent rusting and a possible breakage when removing it from the tube when in the larynx. To perform this operation quickly and with as little shock as possible, certain precautions are of value. The child's arms should be placed by its sides and a blanket should be firmly wrapped about it leaving the neck as free as possible. In young children two safety pins will make this secure, but in older ones a bandage should be added. If this is not thoroughly done, the child will seize the thread and pull the tube out in the struggle immediately following the introduction. A firm, straight-back chair should be placed so that there is plenty of space about it. The person who is to hold the child should be seated squarely on this chair, and the child placed in his arms, and firmly held. The position which I have found most convenient and which gives the most working space in the pharynx is one midway between the upright and reclining, the head resting on the bend of the elbow of the person who holds the child. Displacement of the gag by the shoulders striking it, or the hand of the assistant, is thus avoided.

The gag is then inserted far back in the mouth, taking care to open it widely or it may slip out, The assistant then holds this, and also steadies the head if no other person is available to do this. The operator, standing opposite the child, passes the left index finger well back into the pharynx and on bringing it forward the epiglottis is quickly seized and retained.

The finger and metacarpal joint of the operator should be well covered with adhesive plaster to prevent injury in case the gag slips. The threaded tube is then introduced precisely on the median line, the handle being at first depressed and then quickly elevated so that upon entering the larynx the tube is directed slightly forward. If the case is an easy one the tube slips quickly into the larynx, and as it is nearly in position the finger is pressed firmly upon the collar of the tube and the obturator removed.

It frequently happens, however, that after the tube enters the larynx it meets with some obstruction, the child stops breathing, gives a gasp and the tube slips in easily. This is caused, I imagine, by the approximation of the vocal cords, which upon separation permit the entrance of the tube.

The presence of the tube in its proper position is determined by two facts: first, the peculiar dry cough, which if once heard is sufficient to make one fairly sure; and second, by the presence of a septum between the finger passed into the œsophagus and the tube in the larynx. If this is felt its position is assured. With finger resting on the collar of tube the thread, which should be waxed to prevent sticking together, can be quickly removed and the operation is completed.

The relief in most cases is immediate. The child, after coughing a short time, breathes quietly, the face loses its drawn and anxious look, and for the first time in many hours goes quietly to sleep. This quick transition from the sufferings of severe dyspnœa to peaceful slumber is one of the pleasantest features of this operation, and it is one not so constantly seen after tracheotomy in my experience. While this is by far the most common result after this operation, it must not be forgotten that frequently certain variations are found, and (rarely, fortunately,) other grave emergencies arise, which one should always be prepared to meet. Among the former we find introduction difficult from enlarged tonsils, from swollen epiglottis and ary-epiglottic folds, and from a larynx small and deeply placed. In all these the first attempt may fail, but it rarely fails to dislodge a considerable quantity of tenacious mucus, or even membrane, which clears the way for the second attempt.

Not more than eight to twelve seconds should be allowed for any one attempt and frequent short attempts are far less productive of shock than a single prolonged one which should never be made.

Among the latter, we have the one possible danger of this operation, one fortunately so rare that it does not deter us in the least from performing it. That is, the danger of the membrane blocking the end of the tube, either by being pushed down and folded up, or by its presence below the lower end of the tube. In these cases the operation gives no relief, and the child may stop breathing.

The tube should be instantly removed and the cough which follows the procedure may dislodge the membrane, and render a second attempt possible. When this does not occur an immediate tracheotomy is the only alternative and it must be done quickly.

The outcome of these cases is usually fatal. The more strictly the tube is kept in the median line the less liable is it to dislodge membrane from the sides of the larynx and carry it before it into the trachea. As the tube reaches to within a half-inch of the bifurcation, it is not often that membrane is present in large enough amount below this to cause trouble.

In contrast to the number of deaths which occur from shock and hæmorrhage during tracheotomy, intubation has nothing to fear from a comparison of possible accidents.

It not infrequently happens that during the coughing which follows its introduction the tube may be ejected. One size larger should be selected and will usually be retained. If the tube is coughed out later in the progress of the case the same rule should be observed.

There is usually in these cases an interval of relief, long enough for the operator to reach the patient, and after the first twenty-four hours it occasionally happens that its re-introduction is unnecessary. In general, I have found that the tubes were a little small, and that the relative size of the child was the best guide in the original selection of the proper size of tube.

The after-treatment of these cases requires patient and unremitting care. Children have been, and will be, lost from lack of attention to certain essential details. Where it is possible, the care that a trained nurse can give, will greatly aid in carrying out these details.

To my mind the most important weapons we have to fight this dread disease are: abundant stimulation and nourishment; the free use of steam, and mercurial medication locally and internally.

The child must not be wakened from its sleep, however long it may be, for any purpose whatever. After wakening, however, if it is given some thin liquid and be allowed to take it in the usual upright posture, a violent attack of coughing ensues from lack of complete closure of the epiglottis over the tube. It does not take many such attacks to discourage a child from taking anything.

If, on the other hand, a semi-solid, like ice-cream, thick cream or the like be given the coughing is much less, or none at all, and the child soon adapts itself to its new condition and will soon attain a certain facility of swallowing which will permit even liquids to be swallowed with comparative ease.

The most important advance in the treatment of these children was made when Dr. Casselberry, of Chicago, showed us that a child lying down so that the pharynx was lower than the larynx could swallow with the greatest ease. When this position can be maintained the battle, so far as nutrition is concerned, is half won. This position, in my experience, is very difficult to get children to submit to, but by patience and firmness considerable can be done in this direction. In young children a nursing bottle is a great help and in older ones a tube through which they can take liquids when lying down. As a rule, the younger the child the more difficult is the swallowing.

Among the articles of food from which a selection can be made the following are of the most value — cream, ice-cream, egg-nog, bread and milk, blanc-mange, rennet, oysters raw or stewed, bananas and cream, shaved-ice, eggs in various forms, milk, milk-punches, beef-meal, peptonoids solid and liquid, Valentine's extract, bovinine, custard, Charlotte Russe, corn-starch pudding, sherbet, Roman punch, jellies of various sorts, thick gruels.

Rectal feeding has proved very disappointing, the rectum soon becomes intolerant of even the blandest injections, and there is more or less exhaustion resulting from the necessary manipulation. Before we understood the proper method of feeding it often became necessary, now, it is seldom required. If one wishes to use this method, peptonized milk, with the addition of peptonoids liquid or powdered, gives the most satisfactory results. Half-hourly administration of nourishment during the day is advisable unless the coughing is extremely troublesome when hourly administration may be substituted.

In obstinate cases where other means have failed, resort may be had to feeding through a tube. The child is held in the arms, a gag inserted, and a soft catheter

passed into the œsophagus and the milk poured into the stomach. The procedure is easily accomplished after a little practice and any nurse can quickly learn to do it. About four ounces should be used each time, with some form of stimulant.

The free use of alcoholic stimulants in these cases serves to most effectually fight the septic poisoning of the disease. It seems impossible to over-stimulate these cases, enormous amounts are taken without flushing or other evidences of too great an amount ingested. For a child of three years, from a half to a tablespoonful of whiskey or brandy can be safely given hourly to be increased or diminished as the case demands. By combining it with milk it is more easily taken and is less liable to cause coughing. When a child objects strongly to these two, champagne may be substituted.

In order to loosen the tenacious secretions steam is one of our most valuable agents. I have given up entirely the various steam atomizers, they are always untrustworthy, a cool vapor is produced and they are not available in all cases. I have found the most practical method was to utilize the ordinary tea-kettle which is always at hand. To the nose of this a rubber tube is attached and conducted to the bedside of the patient. The objection which I found to this was that so large a calibre of tube was required that much of the steam was lost by condensation. To obviate this I have availed myself of a device of steam fitters, which is shown in the diagram, called a "reducing coupling." By means of this a large tube may be used on one side and a small one on the other. They can be ordered from any plumber, by simply designating three-fourths inch and one-eighth inch nipples and a three-fourths-inch reducing coupling. The cost is slight, about thirty cents and the convenience great. If a large volume of steam is to be used, the child's bed or crib should be enclosed in a sheet-tent and the steam introduced beneath it.



Nipple (¾ in.). Reducing Coupling. Nipple (⅛ in.). Gas Tip.

Among the various medicinal agents which have been used to prevent the formation and extension of membrane in the larynx, mercury occupies the first place. Children suffering from diphtheria exhibit a remarkable tolerance to this drug. Doses which would salivate an adult are taken with perfect immunity by them. To accomplish anything, large doses must be used. In a child of three years it is well to begin with one-sixtieth of a grain of corrosive sublimate every hour, in Fairchild's essence of pepsin; and this should be increased to one-thirtieth of a grain every hour, if exudation on the pharynx is increasing, or if extension below the tube is taking place. I have occasionally, in severe cases, given one-sixteenth of a grain every hour, and no toxic symptoms were produced. In one case, which was treated under conditions particularly favorable for careful observation, being the child of a physician, during the eight days of the laryngeal invasion six grains of corrosive sublimate were taken in hourly doses of one-sixteenth of a grain. Absolutely no discomfort was noticed.

The symptoms of the toxic action are quickly detected by abdominal pain, nausea and vomiting, and by loose greenish stools. Even more remarkable is this tolerance as shown in the results of the method known as "calomel fumigation." A half-drachm of calomel is sublimed under a tent, and the child breathes this without injury, and with apparent benefit, while the nurses are usually mildly salivated by the slight amount of vapor which escapes from the tent. This method seems to promise good results in the treatment of this disease, but I have not as yet had a good opportunity to try it.

I have seen several cases of beginning laryngeal obstruction which have subsided without an operation where steam and mercury had been freely used, and in these cases the improvement seemed to be due to the mercury. In three cases, I have seen a fresh exudation form on the tonsils where it had disappeared after the use of this drug, and when from fear of poisoning its use had been discontinued. Upon again using it, the exudation promptly disappeared. If enough similar cases can be observed, it will materially aid us in deciding as to its value.

From my experience so far I should hesitate to treat diphtheritic croup without it. In addition to the drug internally, a spray of corrosive sublimate (1–2,000) is of service, used both in the nose and throat. I have given up the use of local applications if a child objects very strongly; for the exhaustion more than balances any benefit to be derived from their use.

Among other agents which are of service are digitalis, if there is defective action of heart or kidneys; also iron and peroxide of hydrogen in very septic cases, applied by spray or swab in the strength of one to four. The temperature of the room should be moderately elevated, 70° to 74°, and the air should be frequently changed to ensure plenty of fresh oxygen.

In favorable cases the child soon becomes reconciled to the presence of the tube, breathes quietly but rather more rapidly than normally, has now and then a severe paroxysm of coughing as it raises masses of tenacious mucous membrane through the tube, and often sits up in bed playing with its toys. More or less cough is constantly present, chiefly for the raising of the large quantities of secretion which come through the tube, but which being swallowed are not so easily noticed, and do not require the care that the secretion from a tracheotomy tube does. In fatal cases the child may gradually sink, the respiration becoming more frequent and the pulse weaker, and death may occur within the first ten hours. The shortest interval that I have observed has been eight hours. In many cases no unfavorable symptoms arise until the third day, when the temperature begins to rise, the respiration becomes rapid and somewhat labored, and the child dies from the resulting broncho-pneumonia in twenty-four to forty-eight hours. In the majority of fatal cases death occurs before the fourth day; and if they pass the third day without the development of these symptoms we can feel tolerably sure of a favorable outcome. The longest time that has elapsed in these cases which I have met with has been six days. If sudden occlusion of the tube occurs, a rare accident in the experience of those who have seen the largest number of these cases, the only resource is to use the method mentioned by Drs. Prescott and Goldthwaite, as used by a nurse at the City Hospital, which was to raise the child by its feet, when the tube may be moved enough to dislodge the obstructing membrane.

Dr. O'Dwyer suggests the value of firm pressure on the chest in cases of this kind, in the hope that the air thus compressed may force the tube out. It seems reasonable and deserves a trial.

The prognosis in these cases is a matter very difficult to estimate. Cases which look favorable will develop the most serious symptoms, and die; while those who have apparently no chance will pull through. In the cases which have come under my notice there were two well-marked classes:

The one, where there was or had been, little or no exudation upon the fauces, glandular enlargement or nasal discharge. This class of cases is often mistaken in the beginning for ordinary follicular tonsillitis, and I have in several cases noted the history of an attack of follicular tonsillitis perhaps a week before the onset of the laryngeal symptoms. Too great care cannot be taken in clearly establishing the diagnosis in such attacks; and in the present state of our knowledge I do not believe it can be done absolutely until a bacteriological examination has been made.

The other class has the ordinary symptoms of diphtheria; the fauces are more or less covered with membrane, the glands are enlarged, and more or less nasal discharge is present.

In fatal cases, the cause of death in the first class is from bronchial extension, and in the latter from septicæmia.

From the fourth to the sixth day the tube should be removed. It is often difficult to decide just when this should be done. In general the younger the child the longer the tube is required; and it is also true that the shorter time a tube is in the less the liability to to produce any ulceration from pressure, or to produce an irritation in the larynx which may be sufficient to require its insertion even in the absence of membrane. In cases where there is an exudate on the fauces, the disappearance of this is a valuable guide in deciding this point. If the temperature is normal or nearly so, the respiration easy and not increased in frequency, and if, in other words, the pathological process is at a standstill, the removal of the tube is advisable as soon as possible after the fourth day.

The operation of removal of the tube is far more difficult in my experience than its introduction. If any one doubts that it is difficult, let him attempt to localize the opening in a small tube, where the pharynx is small, and where every thing is covered with slippery mucus and feels alike, and after having done this successfully to attempt at the same time to hold the epiglottis out of the way while the point of the extractor is inserted into the tube. Far more practice is required and less is available (for removal from a dead child is quite another matter than from a living one), in the extraction of a tube than its introduction.

The instrument designed by Dr. O'Dwyer has the marked disadvantage that it does not hold the tube firmly enough, so that when partial removal is accomplished the tube slips off. Dr. Nichols of the City Hospital has skilfully worked out the mechanical problem, and has devised an extractor so excellent that any trouble in this direction will be avoided. Two points should be kept in mind in removing a tube: keeping the handle depressed as the tube is raised from the larynx, and also avoiding too great pressure downward in difficult cases. If there is much difficulty, it is safer to have an assistant place a thumb against the trachea where the lower end of the tube can often be easily felt, and by pressure upwards a greater firmness is given which renders a pushing into the trachea improbable.

If the tube is to be reinserted, the dyspnœa may at once recur, but in most cases not for four or five hours; after twelve hours they are usually safe. A most interesting exception to this was seen in a case which I saw with Dr. Francis Murphy, of Roxbury.

A child of eight and one-half years was intubed on November 27, 1890. The case progressed favorably, and the tube was removed on the sixth day. No recurrence took place until December 7th, when a second intubation was necessary. Removal was again accomplished on the fifth day, December 12th, and the case continued to perfect recovery. This is the only case of the kind I have ever seen, and the only one in which I have been obliged to reinsert a tube. After removal, the same treatment should be kept up for twelve hours. Children, from a stiffness of the epiglottis swallow little if any better for that length of time than when the tube is in position. Steam can usually be omitted on the second day, and the bichloride diminished rapidly till it is omitted on the fourth day.

From the foregoing considerations it will be seen that intubation is an operation especially adapted to private practice. It is always available, can be done early, is both painless and bloodless. In a majority of cases it relieves the dyspnœa perfectly and leaves no after-effects. It saves as many lives as tracheotomy, and many more where the latter could not be performed. On the other hand, it cannot be selected in all cases. It is not advisable where the tonsils are so large that they prevent the necessary manipulation, or where the fauces are full of putrid *débris* and the epiglottis immovable from the destructive action of the disease. Nor is it advisable in cases at a great distance on account of the possibility of the tube being coughed out and the dyspnœa recurring before the operator could reach the patient.

If one is called upon to operate upon his first case of croup, it would be wiser to select tracheotomy; but after a certain familiarity with the feel of the parts has been attained, which largely does away with the awkward and even brutal attempts seen in the beginner, I am sure that intubation would nearly always be selected. The operation is not and can never be an easy and simple one; extremely so at times, at others it is so difficult as to perplex the most skilful intubator. When its advantages have become thoroughly known, I am sure that many lives will be saved which now are lost, and that the profession will feel an increasing sense of gratitude to the skilful physician who devised it, Dr. Joseph O'Dwyer.

HORSE-HAIR IN MINOR SURGERY.[1]

BY C. O. THOMPSON, PH.G., M.D.

In calling attention to this subject it is not assumed that anything entirely new is to be presented, for horse-hair was probably used by surgeons in early times; but that its real usefulness is practically unknown to many is evident from the fact, that little has been written regarding its use, and it is found in the hands of very few at the present time.

The principal materials now in general use in suturing

[1] Read before the Surgical Section of the Suffolk District Medical Society, April 5, 1893.

ing wounds, are catgut, silk, and silver-wire. Catgut for stitching, has many disadvantages. When it is removed from the various liquids in which it is usually kept, it is harsh and kinky. When moistened with water or fluids from the tissues, it becomes slippery; and in either condition it is not easily handled, and is particularly difficult to tie. It is quite uncertain as to its retaining powers; and the fine gut cannot be used as it is too quickly absorbed. It is, therefore, often necessary to use a much larger needle than is desirable, as the eye of a smaller needle will not admit it, and its want of pliability causes it to form a shoulder at the eye, which is certainly objectionable.

Silk, although probably used more than any other material, is also open to several objections. It must be sterilized by immersion in antiseptic solution or moist heat; and when this is done it becomes swelled, so that it is difficult to get it through the eye of the needle. If threaded before it is sterilized, the needle will rust. When placed in the wound it imbibes the secretions of the tissues, and there forms a media for the invasion of bacteria, which have been proven to be present in the epidermis even after the most thorough disinfection. In this softened and soggy condition it becomes yielding and allows the opposed surfaces to move easily, which is unfavorable to union. If drawn sufficiently tight to hold the tissues in place, tension is apt to occur in the wound. Silver-wire, as a suture, offers fewer objections than any in common use, this being due largely to its non-absorbing property, but wire is not suited to all parts of the body. In its application to the lax and delicate integuments, it disposes the edges of the wound to twist and coil up far more readily than the wire itself. It is too stiff and unyielding, and therefore, its adjustment to these parts is difficult. After it has remained in the tissues for some time, it becomes so rigid that its removal is not only painful, but the parts are often torn, and the freshly united edges of the wound separated.

It was not until I had used horse-hair for three years, and had become thoroughly impressed with its practicability, that I had occasion to review the literature on the subject. The first mention of horse-hair found was in an article by Mr. T. Smith, of St. Bartholomew's Hospital, in the London *Lancet*, in 1862; in which he gives the results of a series of experiments with this material. In 1870, Dr. J. T. Darby published a monograph on "Hair as a Suture and Ligature"; a report of twenty cases was given in which hair was used in suturing with excellent results. In a paper entitled "Horse-hair Suture and Drainage," read before the New York Medical Society in 1884, Dr. Daniel Lewis relates his experience with horse-hair, and speaks highly of its utility.

Horse-hair is readily obtained by all surgeons, whether in city or country practice, and its preparation for use is perfectly simple.

The objection has been made that horse-hair, being cellular in structure, cannot be sterilized. This objection, however, is not well founded, as horse-hair is not materially injured by any of the methods used in the sterilization of dressings. Boiling in water is acceded to be one of the most practical methods; and according to the experiments of Drs. Stone, Dowd and others, all pyogenic bacteria are quickly destroyed, even the spores of these organisms cannot long resist this treatment. It is, therefore, an easy matter, should sutures not be at hand, for one to always readily prepare a practically sterilized suture, by removing a few hairs from the tail of a horse, placing them in boiling water for from three to five minutes, when they will be ready for use.

Although pus-producing micro-organisms are unquestionably destroyed by boiling, there are, however, certain forms of germ life whose spores are very resistant, as those of anthrax and tetanus; and as there is always a possibility of these being found in horse-hair, a series of experiments were performed with various disinfecting solutions. Dr. A. K. Stone kindly made the bacteriological tests for me. I will not here detail the various experiments; but it is enough to say that the simple immersion in ether, alcohol, solutions of carbolic acid and corrosive sublimate, for several hours, or days, and even repeated boiling in water was found not to render the hair *absolutely* sterile.

I have used the following method in preparing the hair for use: A bundle of carefully selected hair weighing from one to four drachms (the very fine and coarse hairs being discarded), is freed from dust as much as possible by shaking and combing. It is then washed in strong soap or soda solution, and when dry placed in a jar or bottle of the capacity of about one pint (a Mason fruit-jar answers the purpose admirably) which is then filled with benzine, the jar being agitated frequently. The treatment with benzine may be repeated several times; thus all fatty material is removed from the hair. It is next treated with a strong solution of bichloride of mercury, and finally immersed in bichloride of mercury solution, 1–1000. After this treatment the hair was found to be *absolutely* free from germ life.

If removed from the antiseptic solution it becomes stiff and wiry, and is not easily tied. It should, therefore, be kept in the solution until needed for use. A small bundle of hair can be folded and placed in antiseptic solution in a small vial, such as is carried in the ordinary medicine case, and is then ready for immediate use. Unlike catgut or silk, it does not swell when placed in aqueous solution, but, on the other hand, is rendered more suitable for use by its becoming more pliable, and its flexibility is retained so long as it is kept in a moist condition. It can be easily tied and holds a knot perfectly well. Its smoothness and uniformity of calibre, is such that it can be very easily passed through the eye of the needle, which is certainly a marked advantage over catgut or silk.

When a single hair only is required, a small needle or one with a small eye can be used. This is of decided advantage, notably in stitching about the eye and face, where one is particular not to leave stitch scars. How frequently we see in recently healed wounds, that have been closed with either catgut or silk sutures, stitch scars that are even more unsightly than the line of union itself. These scars after the use of the hair stitch, properly applied with a fine needle, are almost imperceptible. The sole disadvantage of horse-hair is its want of tensile strength, which makes it less useful than wire where several tissues are to be included and there is much tension in the wound; but by using two or more hairs together the strength is quite sufficient to readily overcome the tension of even large wounds. As a rule, a single hair is sufficient for closing a wound, unless it be large and much gaping is present.

The large, black tail-hairs are preferred for sutures, as they are more easily seen when you desire to

remove them, which is done by seizing the knot with forceps and snipping the hair to one side, when its smoothness and elasticity greatly facilitates its removal.

Horse-hair has all the advantage of the metallic suture, save that of strength, and is much more desirable to use where the tissues are lax and delicate, as of the eyelids, scrotum, penis and mucous membranes. It is equally unirritating, and so flexible as to readily accommodate itself to the folds of the integuments. Its pliability permits it to be easily passed through the tissues, and by its expansion it almost relieves itself from the tissues in which it is placed.

Its removal is accompanied with no pain or liability of injuring the parts. The hair suture produces so little irritation in the tissues that it can be allowed to remain for some time. I have removed these stitches that had been in the scalp from fifteen to eighteen days, and had apparently produced no disturbance. The fact of their being tolerated by the tissues for so long a period, makes it specially applicable to plastic surgery.

I have used this material for drainage, a small bundle being passed through the eye of a probe, and then the probe passed through the closed linear wound, drawing in the hair; or, if the wound be deep with narrow outlet, a bundle folded upon itself can be forced into the wound, and it certainly answers the purpose well. As the wound heals, the drainage can be gradually removed a few hairs at a time. It is not, of course, suited for draining large wounds.

My experience with horse-hair has been considerable, having employed it in the treatment of 296 incised and lacerated wounds during the past year. These have included nearly every part of the external body and its orifices, but principally of the face and scalp. The results in these cases have been so gratifying that I am convinced that the value of horse-hair renders it deserving of more general use.

I venture to call attention to the following cases:

Case I, January 11, 1892. Mr. C. D., age thirty-one years.

He came to office with incised wounds caused by broken glass. First wound on right eyelid three-fourths of an inch in length. Second, beginning at right eyebrow, extending upward and to the left, across the forehead, about two inches in length. Third, horizontally above left eye-brow, one inch long. The fourth, horizontally across the upper part of forehead, two inches long. First was closed with five single horse-hair sutures, second with eight, third with three, and fourth with seven, making in all twenty-three stitches in the face. Bichloride dressings were applied, the wounds healing promptly. In three days half of the sutures were removed, and the remainder on the fifth day.

Case II, October 2, 1892. Mr. C. L., age twenty-six years. Congenital phymosis; circumcision.

Elastic band placed about the penis. Forty minims of four-per-cent. solution of cocaine injected. About one inch of prepuce was removed, and frenum (which was short) was snipped. Elastic band removed. Small vessels seized and twisted. Fourteen interrupted sutures used to bring together edges of skin and mucous membrane. Dressed with sublimate gauze. Seven stitches removed on the sixth day and remainder on the eighth. Union by first intention. This is the tenth adult circumcision in which I have used horse-hair.

Case III, Mrs. C. R., age twenty-seven, primipara. Lacerated perineum.

Saw her on September 28, 1892. Had been in labor about six hours. Examination showed breech to be the presenting part. Labor was allowed to proceed without interference until breech was delivered. Patient was then anæsthetized, and feet and hands of child brought down. In haste to deliver the head I applied the forceps, and head was rapidly delivered. Child was resuscitated, and labor was concluded by expressing placenta. Upon examination, perineum was found to be lacerated for about three-fourths of its depth. This I determined to close immediately. Vagina was loosely packed with sublimate cotton, edges of laceration thoroughly cleansed, and wound closed with nine double horse-hair sutures. Packing was removed and no dressing was applied, and owing to circumstances and surroundings of patient, no special care was taken of wound. Patient made a good recovery. On the tenth day stitches were removed, the wound having closed by first intention.

The above is one of several perineal cases, in all of which I have closed laceration with horse-hair sutures with pleasing results.

Case IV, February 2, 1893. Mr. J. G., age twenty-seven years. Applied for treatment of swelling in left groin.

Examination and history lead to the diagnosis of syphilitic bubo. There were no signs of fluctuation. Solution of cocaine was injected, and an incision three inches long was made. Four large softened suppurating glands were removed, cavity curetted, and wound closed with five double horse-hair sutures, a drain being placed in lower end of incision. A large bichloride dressing was applied, and patient walked out of office. He returned again on the fourth day, and wound was again dressed. On the tenth day the stitches were removed, the wound having healed by primary union.

A SUMMARY OF THE ADVANTAGES OF HORSE-HAIR.

(1) Easily obtained and inexpensive.
(2) Soft, pliable, elastic and holds a knot well.
(3) Aseptic, non-absorbent and non-irritating.
(4) Can be used with a very small needle, and makes no shoulder at the eye.
(5) More easily removed than any other suture, without pain or injury to the tissues.
(6) Can be used for drainage.

Clinical Department.

SIMULTANEOUS FRACTURE (INTERARTICULAR) OF BOTH OLECRANON PROCESSES.[1]

BY E. S. BOLAND, M.D.

Finding only one similar case on record, and getting the consent of my patient to appear before us to-night, I have thought that there might be enough interest in it, to justify me in reporting this case.

August 16, 1891, Miss H. fell from the foot-board of an open horse-car, her dress drapery having caught on some projection of the seat or seat arm. She believes that she had both arms flexed in falling and struck both elbows on the pavement. The appearance of the elbows confirms this view. When she fell, she had but a single thickness of a summer garment on her arms.

[1] Read before the Surgical Section of the Suffolk District Medical Society, April 5, 1893.

When examined by me within twenty minutes of the accident, I found a simple transverse fracture of the right ulna in the depth of the sigmoid notch and a similar break on the left side with, in addition, a splitting of the detached olecranon at an angle to its long diameter. There was bruising and excoriation of the skin and soft parts over the back of both elbows, most marked on the left side; but although all three of the fractures extended into the joint, in neither case was the joint opened to the surface of the skin.

Realizing that there might be troublesome complications ahead, I asked Dr. M. F. Gavin to see the case with me. When he examined her the interarticular swelling was slight. He concurred in the diagnosis; and together we applied light, long wooden splints to the palmar side of both arms from the axilla to the ends of the fingers, disregarding the natural lack of parallelism between the arm and forearm and leaving a wide opening in the dressings over the elbows, to accommodate the now rapidly increasing size of the elbows from swelling of the soft parts and effusion into the joints. No attempt could be made to keep the distinctly separated fragments in contact at this time. Later, it was attempted on the right side; but the attempt was unfortunate, and, as I believe, responsible for the slower recovery of mobility in this joint than on the other side, where the conditions were much worse primarily on account of the comminuted fracture and greater injury to the soft parts. Indeed, so badly did the left joint look at this time that I feared its disorganization as the skin sloughed in places, rendering soothing applications necessary for several days.

Dr. M. F. Gavin kindly saw the case with me when the dressings were changed for the first time, and again to assure us both that the case was not so bad as it looked (which was certainly bad enough) with sloughing soft parts.

The patient was now, at the fourth day, getting very uncomfortable from the necessary confinement to bed on her back, as in no other way could the arms be supported; and she was as helpless as if she had no arms, not being able to turn or sit up.

Knowing that there would still be many days before flexing of the arms would be safe, I applied the principle of the Salter's cradle to her case. Erecting a light frame seven feet high, I slung two straight cradles by compensating cords and pulleys so as to admit lateral or front and back swing and adjustable to any elevation or angle. While sitting in a chair this could be used for some hours daily, with much relief from the irksomeness of the bed and dragging weight of the arms when motion was attempted.

As the swelling of the elbows went down, I began to fear anchylosis rather than non-union, to obviate which I began passive motion, stroking, kneading and, in short, general massage of the arms as early as the fourteenth day. At no time was pronation or supination seriously interfered with; but flexion of the right arm was most difficult and painful, although flexion of the left, from which at first there was most to fear, was less so.

About the twenty-fourth day the splints were removed except at night, and soon after entirely dispensed with, and special attention was given to daily massage. I am convinced that to this thorough daily massage, the patient owes the successful outcome of her case.

As soon as possible, gymnastic exercises were begun — at first only tossing a four-ounce bean-bag, then small dumb-bells, then light chest-weight exercises and finally Indian clubs, which she is now master of.

As mentioned above, the most seriously injured arm (the left) in which no coaptating measures were used, began to gain first, made more rapid progress, and its perfect use was regained long before the right, though Miss H had always been right-handed. I cannot explain this unless it was due to the attempt to coaptate the fragments of the right arm by pressure.

I was ready to report this case a year ago and show its results; but the Secretary of the Section had all dates filled for months ahead.

It is due to the patient to state that she has faithfully and intelligently persevered in every procedure attempted for her relief, in spite of the fact that an impending suit for damages put a premium on slow progress or permanent disability.

If you will examine the elbows, the lines of displacement can be distinctly felt, though less so now than formerly. The right hand covers the corresponding shoulder less perfectly than the left, but still as much so as in many who are uninjured. In sewing, when the weight of the arm comes on the shoulder, pain is still experienced. This is probably due to the severe jarring the shoulders received at the time of the accident, though no objective signs of injury could be found there at the time.

Miss H. will now swing the light Indian clubs, that you may see her perfect control of her arms. This exercise is one with which she was unfamiliar until after her accident.

AN ANOMALOUS EXTERNAL ILIAC ARTERY: AUTOPSY REPORT.[1]

BY PAUL THORNDIKE, M.D.,
Surgeon to Out-Patients, Carney Hospital, Boston.

A MAN, M., forty-eight years of age, entered the Carney Hospital on January 23, 1893, as a patient of Dr. W. N. Bullard, visiting physician to the hospital. The man was suffering from a chronic interstitial nephritis and died from this disease a few days later.

While examining the man, Dr. Bullard noticed a marked pulsation in each groin, and on palpating the areas, felt what he thought were large arteries pulsating directly under the skin and each apparently passing over Poupart's ligament and down into Scarpa's triangle. Two days later, January 25th, I saw the man with Dr. Bullard. As the patient lay on his back in bed, a pulsating area was to be seen in either groin. On palpating one of these pulsating areas there was no feeling of "thrill" or expansion, but the fingers felt what was evidently a large blood-vessel, which appeared close under the skin at a point about an inch above Poupart's ligament, passed over the ligament at a point midway between the anterior, superior spine of the ilium and the symphysis pubis, and then immediately became indistinguishable from the femoral artery, which could be felt pulsating in its normal position. The vessel felt like a somewhat atheromatous artery, and was about the size of a lead-pencil. On examining the other groin an exactly similar condition was found.

On the following day the man died; and I quote this extract from the autopsy report, furnished me by Dr. F. Coggeshall, pathologist to the hospital:

[1] Read before the Surgical Section of the Suffolk District Medical Society, April 5, 1893.

"The autopsy showed that the patient had suffered from chronic interstitial nephritis and arterio-sclerosis. At the end of the autopsy the following curious anomaly was observed: 'In both groins there could be felt passing over Poupart's ligament, and lying apparently just under the skin, a round, firm, somewhat movable, cord-like body about the size of the little finger. After removing the contents of the pelvic cavity, it was possible to trace distinctly the course of the abdominal blood-vessels, and it then became evident that what was felt under the skin was an unusually large external iliac artery which bent suddenly toward the surface when it had nearly reached Poupart's ligament and passed over it and just beneath the skin and superficial fascia. On continuing the abdominal incision into both thighs so as to lay open Scarpa's triangle, the whole course of the vessel was laid bare. It clearly passed over Poupart's ligament, rising abruptly from pelvic cavity and sinking again as abruptly to lie at the usual depth from the surface in Scarpa's triangle. The peculiarity was exactly the same in both thighs.'"

The vein accompanied the artery in both cases, while the nerves passed under Poupart's ligaments in their usual position. It was not possible at the autopsy to remove enough of a specimen to show all the relations of the artery and vein, so I am able to show you only the vessels themselves. The specimen includes about two inches of the right common iliac artery, the whole of the external iliac and the common femoral and about two inches each of the femoral and profunda femoris arteries.

In conclusion, I want to say that there can be no possible doubt of the anomalous course of these vessels, in spite of the well-known rarity of such anomalies. The dissection at the autopsy was most carefully and thoroughly made by Dr. Coggeshall, and was witnessed by Dr. Bullard and other members of the hospital staff. I have been unable to find a similar anomaly recorded in literature.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

C. L. SCUDDER, M.D., SECRETARY.

Regular Meeting, Wednesday, April 5, 1893, Dr. Abner Post in the chair.

Dr. E. S. Boland reported

TWO CASES OF SIMULTANEOUS FRACTURE OF BOTH ELBOWS.[1]

Dr. H. L. Smith showed two specimens, one a comminuted fracture of the olecranon taken from a man who had fallen from a height together with snow and ice, and had sustained internal injuries from which he died in a few days. Attention was called to the deep indentations upon the articular surface of the trochlea and the likelihood that adhesions might be formed at these points. The second was an elbow found in the dissecting-room, the history of which was not known. There was a Colles' fracture apparently impacted and firmly united. There was also fracture of the coronoid process, which was shown on section, and transverse fracture of the olecranon not united. It appeared that the accident must have occurred many months previous to death. The coronoid process was not at all displaced, the fact of there having been a fracture being shown only by a line running through the articular cartilage. On cross-section in a vertical plane, the fracture was seen to have included the bone. The olecranon process was fractured nearly transversely, about two centimetres from its extremity. There was absolutely no attempt at union of the broken surfaces, the fragments being held loosely together by dense fibrous bands connecting their posterior surfaces. The olecranon fossa was partially obliterated, so that extension was limited to an angle slightly more than a right angle. Flexion was nearly perfect, the fragments then becoming separated about half a centimetre. As far as could be judged the arm must have been a very useful one.

Dr. Smith said: An instance of simultaneous fracture of both olecranon processes has been reported by Fletcher.[2] The patient, a lad of sixteen fell over a piece of timber, striking on both palms. There was a separation of a finger's breadth in each bone. He was treated in "the usual way" by splints; and it was found after his death, which occurred ten months later from phthisis, that both processes were firmly united by bone.

Three reasons have been given for the frequent lack of bony union after fracture of the process:

(1) Insufficient blood-supply, due to the fact that the process is not covered by true periosteum but by an aponeurotic layer continuous with the tendon of the triceps.

(2) Imperfect contact between the broken surfaces, caused either by muscular spasm or effusion into the joint.

(3) Presence between the broken surfaces of foreign material, such as blood-clot or shreds of tissue.

All procedures, other than the commonly employed one of fixation of the joint with attempted replacement of fragments by various forms of external pressure, have been devised for the immediate purpose of overcoming one or the other of these supposed causes of non-union:

(1) We may safely say that the reason first given, namely, that of deficient blood-supply, is no longer tenable, since experience has shown that vertical fractures here and in the patella, where the conditions are very similar, always unite readily and firmly, and it has been abundantly proven that bony union does occur in the great majority of cases when the fragments have been wired.

(2) Probably far too great stress, here as well as in other fractures, has been laid upon muscular spasm. Mr. Macewen [3] has observed how easily the fragments of a transversely divided patella can be brought in contact after an incision has been made and other causes of separation have been eliminated.

To remove interarticular pressure due to effusion Grimm [4] has in one case employed early massage. In this instance there was a final separation of one-half cm. The injury in this case was a direct fall upon the elbow, a form of injury which ought, on theoretical grounds, to give the best result so far as a bony union is concerned. There have been reported three cases [5] in which the joint has been aspirated. Two

[1] See page 347 of the Journal.

[2] Medical Times, London, 1851, N. S. iii, 173.
[3] Annals of Surgery, St. Louis, 1887, 5, 177-200.
[4] Wien. Med. Presse, 1888, 33, 1190.
[5] Lancet, London, 1889, 1, 325. Centralbl. f. Chir., 1885, 12, 570.

occurred in young men; one in a woman of sixty-eight. All were the result of direct violence, and all were aspirated immediately, with the removal of considerable quantities of blood and bloody serum. Very close union with good functional result occurred in all the cases. It is to be noted than no one of the above forms of treatment will insure bony union.

(3) The real reason for the frequent lack of union seems to have been arrived at by Mr. Macewen,[6] who made experimental fractures of patellæ, and who observed that where rupture occurred through indirect violence the bone was the first structure to give way and then the fibrous aponeurosis covering its anterior surface became overstretched, and finally ruptured, the ragged edges becoming folded over the fractured surface. When the rupture resulted from a direct blow on the patella the aponeurosis was itself torn across in the line of fracture. In the latter case there is no impediment to the direct contact of the broken surfaces, and bony union is more apt to follow. In the former case the fibrous masses cannot be dislodged and form an efficient barrier in preventing coaptation and bony union. Mr. Macewen thinks that he can demonstrate the presence of this aponeurotic tissue between the fragments by the soft elastic feeling, which he compares to that made by blood-clot obtained in attempts at producing crepitus. Although no experiments were made upon the olecranon, the writer referred to has observed a similar condition to that which obtained in broken patellæ in three cases where he had opportunity to cut down upon fractures of the process within a few hours after the injury. In these cases there was the same feeling of soft crepitation, and the explanation was found in the presence of the ends of the fibrous aponeurosis which had fallen in between the fragments.

To remedy such a condition nothing short of open incision seems to offer much certainty of success. I have found reports of fourteen cases where the olecranon has been wired. They are reported by Agnew,[7] Manley,[8] Mackay,[9] McCormack,[10] Rose,[11] Parker[12] and Macewen.[13]

Of the fourteen cases five were done within a few hours after the accident; six in consequence of non-union, after a lapse of from a few weeks to four months; and in three the reason is not stated. In four cases the result was noted as due to direct injury, and in three cases to indirect violence or to muscular action. In the others the point of injury was not distinctly stated. In two cases the arm was put up in a flexed position with good result.

It is interesting to observe that not a single bad result is recorded. The fragments have remained in perfect position, and in nearly all the cases the functional result was described as practically perfect after the lapse of from two to four months. In one case a bit of wire was removed from a sinus after fifteen months; with this exception no trouble was experienced with the wound.

While the result of these recorded cases may not justify a general resort to wiring in every case of olecranon fracture, they do give good assurance that excellent results may be expected to follow a secondary operation where lack of union or wide separation of the fragments produce diminished power of forearm extension.

[6] Annals of Surgery, St. Louis, 1887, 5, 177-200.
[7] Phil. M. & S. Reporter, 1870, 279.
[8] Pittsburgh Med. Rev., 1888, 2, 245, also, N. Y. Medical Journal, 1889, 13.
[9] Can. Lancet, 1887, 105.
[10] Australasian Med. Gaz., 1885, 5, 61.
[11] Lancet London, 1880, 1, 835, also, Med. Press & Circ., 1883, 289.
[12] Tr. Clin. Soc. London, vol. xviii, p. 329; also, vol. xxii, p. 415.
[13] Annals of Surgery, St. Louis, 1887, 5, 177-200.

DR. GAY: I should like to ask Dr. Boland if he made any experiments before he put on his splints, to see if the position of the arm had anything to do with the position of the fragments.

DR. BOLAND: I did not attempt it at all. In regard to soft crepitus, we did not get soft crepitus. Crepitus was distinct and so plain that there was no mistaking it. On the left side you could make out three pieces, and the crepitus was distinct between each.

DR. GAY: I asked the question because, while the classical way of treating those cases is with the arm in the extended position, I have seen a few cases where the position of the forearm seemed to have no effect upon the relative position of the fragments. It is easier to carry the arm in the right-angle position than in the straight position. I have always thought that the separation of the fragments was dependent upon the amount of laceration of the aponeurosis and the surrounding tissues. I remember one case I treated in the flexed position, and the result was good enough. In other cases where there was wide separation, of course I should not treat it in that way. I have never wired the bones. This case of Dr. Boland's is very interesting because the injuries were very severe and the functional results were admirable. Nothing could have been better.

DR. POST: I should like to ask Dr. Smith if anything was stated in regard to the indications for wiring the fragments in the cases he has referred to.

DR. SMITH: Dr. Agnew's case was a case of ununited fracture, and the wiring was undertaken on that account. In several other cases the operation was done for lack of union, with consequent disability.

DR. C. M. Whitney read a paper on

INTUBATION OF THE LARYNX. A RÉSUMÉ OF CASES IN PRIVATE PRACTICE.[14]

DR. GAY: I think Dr. Whitney has been particularly fortunate in his results, and is to be congratulated thereon. There is one point especially I want to speak of, and that is the way of estimating the value of the two operations. Heretofore it has been done, and I have been guilty of the same thing, by estimating the number of recoveries or deaths. It seems to me that is not the proper way. These operations are done for one specific object, and that is to relieve the laryngeal dyspnœa, not with the object of preventing or curing septicæmia, or preventing or curing bronchial croup, only to relieve the dyspnœa due to obstruction of the larynx. That being the case, we can very readily reconsider, I think, the value of the two operations. So far as my experience goes, intubation relieves the laryngeal dyspnœa about as well as tracheotomy. Once in a while a case of tracheotomy seems to do better than intubation; but I think in that case it is where the amount of thick gummy secretion is profuse, and there, I imagine, a little is pushed down ahead of the tube, and the child cannot clear the trachea and the tube, and relief is not as great. In only one or two instances have I been obliged to pull out the tube and do tracheotomy. The more I see of this operation the more I believe in it as the ordinary every-day operation in private practice. In the hospital I do not think the difference is so great.

[14] See page 341 of the Journal.

The other points in Dr. Whitney's paper I agree with very generally: especially is the point of stimulation well brought out. In septicæmia of all kinds it seems to me stimulants are the best agents with which to combat it; and as Dr. Whitney says, I do not believe, as a rule, you can give too much. My experience with the bichloride has not been as fortunate as Dr. Whitney's, perhaps, because the type of cases was different. But I do not know of anything else to take its place, and I think it is well to persist in its use.

Dr. Prescott: I think that if Dr. Gay had taken only the cases that he had in the hospital, and looked at the results which he obtained from mercurial treatment, he would find that his success had been similar to that of Dr. Whitney's, because he has been the one who, more than any other, has used the mercurial treatment, and has upheld it at all times when he has been on service; and the results in those cases which Dr. Goldthwaite and I reported were much more favorable when treated with mercury than in the cases not so treated. I think the difference was over seven per cent.

As regards the difficulties of the operation, I think it is quite a common thing for a person who for the first operation has an easy case to think that the operation is an easy one. I have had three men come to me and say they thought I put too much stress upon the difficulties of the operation, as it was so easy. They had never done the operation, and yet had put the tube in the first chance they had to try. I have always taken the ground that they would come to a case where they could not get the tube in; and that has been the case with every man who has spoken of it to me.

I think the point Dr. Whitney made about feeling the septum behind the tube is of very great importance in deciding whether the tube is in the larynx or not, for although the peculiar cough which comes when the tube is in the larynx is almost pathognomonic, yet even the practised ear is sometimes deceived.

In a meeting that was held here some months ago the question of drainage was dwelt upon, and the advantage of tracheotomy in giving good drainage to a case of diphtheria was presented as one of the advantages which tracheotomy had over intubation. I have looked up the cases of tracheotomy where there was no diphtheria, to see if there were not in such cases a great deal of discharge. In the last ten years at the hospital I could find twenty cases of tracheotomy done for other causes than diphtheria. In six of the cases no mention whatever is made of the discharge. One of the others died within twelve hours. There was a good deal of discharge, but I do not think it a fair case because the patient had large white kidneys and died with œdema of the lungs. In one case of tuberculosis there was little or no discharge from the tracheotomy tube, the patient doing well. In all the other cases mention was made of a profuse discharge, beginning with mucus tinged with blood and becoming purulent. In one case, a case of bullet wound, the man died of purulent bronchitis. In another case of cut-throat I could not decide where the pus came from. They said it was a cut-throat, and the tube was put through the wound and pus came from that. I threw it out as not being a fair case, but all the others seemed to me to be fair cases. In each there was a good deal of discharge from the simple introduction of the tracheotomy tube. In one of the cases where there was no mention made of the discharge, the house-officer who was on duty at that time remembered the case very well. It was a case of tracheotomy for paralysis of the vocal cords. In that case the man had to have a special nurse night and day on account of the extreme discharge from the tube necessitating its removal every two hours. There is nothing to show as yet that the intubation tube in the larynx causes the extreme discharge which comes in the tracheotomy tube: and it seemed to me possibly one explanation of the fact that cases get well after tracheotomy, where the discharge was free (and the percentage is nearly fifty in the cases reported by Lovett and Munroe where the discharge was free), was due to the fact that in those cases the membrane had not extended below the larynx, therefore the trachea was more nearly in the normal condition, and that the irritation set up in other cases was set up in these cases more easily than where the trachea was lined with membrane, as it is in the more fatal cases.

Dr. C. O. Thompson read a paper on

HORSE-HAIR IN MINOR SURGERY.[15]

Dr. Storer: I think the reader did not mention one suture which I regard as an ideal suture in almost all respects, that is silk-worm gut. It is sterilized without any trouble merely by immersion in steam for three or four minutes. It is absolutely unirritating. It has also the advantage which the reader spoke of as belonging to silver-wire the best of the other sutures, namely, strength. A medium sized silk-worm-gut strand will not be broken by all the strength you want to put upon it. It is said that three or four strands of horse-hair would be equally strong. It seems to me there are objections to suturing with a material of which you have to take several strands.

Dr. Thompson stated, in answer to questions, that horse-hair could be used to close almost any wound. He had under treatment a patient from whom he had removed a large tumor, and had used thirty-six sutures in the wound. In that case there had been a good deal of tension, but without any sign of cutting.

As to the tests by Dr. Stone, I have received only reports as to the presence or absence of bacteria. In all instances the organisms were present except when the horse-hair was sterilized by the treatment with benzine followed by bichloride. In some of the tests organisms were present after repeated boiling.

Dr. Thorndike showed a

PATHOLOGICAL SPECIMEN OF AN ANOMALOUS EXTERNAL ILIAC ARTERY.[16]

Dr. Munro: This certainly is a most unique case. It is difficult to understand how the artery could pass over Poupart's ligament. The ordinary anomalies of the femoral consist in its coming from the internal iliac (the branch corresponding to the external iliac being a very small vessel), or it splits in the pelvis or under the ligament; and there may be a vas aberrans. I can find no record of a case similar to the present.

A newspaper with a weakness for medical items published the following remarkable statement in a recent cable dispatch regarding the illness of Prince Bismarck: "The sciatica has now reached his arms and prevents him from using his hands, so that it is necessary for his attendants to feed him."

[15] See page 345 of the Journal.
[16] See page 348 of the Journal.

NEW HAMPSHIRE MEDICAL SOCIETY.

ANNUAL Meeting at Concord, N. H., June 19 and 20, 1893.

DR. EDWARD O. OTIS presented a lengthy paper on

PULMONARY TUBERCULOSIS, ITS PROPHYLAXIS, HYGIENIC AND CLIMATIC TREATMENT.[1]

DR. DAY: I have been interested to compute from the State Board of Health's Reports, the number of deaths from phthisis in the State of New Hampshire. As compared with the whole number of deaths in each county, the percentages of deaths from this disease are as follows:

Coos County	9.25%
Carroll County	10.76
Sullivan County	10.94
Grafton County	10.95
Merrimac County	10.99
Cheshire County	11.21
Hillsboro County	11.54
Rockingham County	12.63
Belknap County	12.98
Strafford County	13.80

Surely a marked difference. Now, if you will look on the map of New Hampshire, you will see that the countries which show the lowest mortality are in the more elevated portion of the State, while those which show the highest are along the sea-coast, or in the lower portion. So it seems to me that, as Dr. Otis says, we can take advantage of this fact and send our patients who cannot go South or West to higher altitudes nearer home.

DR. CONN: In order to have a dry climate we must have a dry soil. Mere altitude, though it be in a section of the country where but little rain falls, does not always make a dry climate, certainly not a dry soil. Places like the city of Mexico, where the rain falls during only two or three months of the year, would be uninhabitable, were it not for the fact that they have perfect sunlight all through the winter. It is a land of perfect sunshine during the winter months, and yet even there they have much consumption. Their most fatal diseases are phthisis and pneumonia. To those going from the States into that section it is folly to expose themselves after nightfall; and even in the day-time it is better to keep in the sunlight.

There are portions of Mexico which might be good places for consumptives, if they could get good food and shelter. In El Paso, Tex., I found physicians who thought it impossible to live in other climates. Dr. Jessup went from the States, going into other parts of Mexico, but found no place where he could breathe so comfortably as in El Paso. He gained in weight, and now considers himself quite well; and other physicians have had similar experience.

The County of Grant, in New Mexico, which is larger in area than the State of New Hampshire, the altitude being from 4,000 to 6,000 feet, with only an average of three inches of rain annually, would be an excellent climate; for there consumption among the natives is almost unknown, and whenever it can be made comfortable for people to go and stay in hotels and boarding-houses, it will become the sanitarium of this country.

Silver City, N. M., can be made comfortable for invalids, and may be a good place; but it is useless to send people who have had the refinements and luxuries of home into a wild country where they will have to rustle around like the natives of the country. They cannot do it, and they will sink faster than if they remained in their own land.

[1] See page 337 of the Journal.

SEQUELÆ OF LA GRIPPE.

DR. W. H. ALDRICH, of Marlboro: While the complications of *la grippe* have been many and varied, involving nearly all the organs of the body, most of the physicians have been particularly struck with the prominence of nervous and mental phenomena presented in individual cases.

One of the most common complications has been the so-called pneumonia following *la grippe*, which I am inclined to think is not pneumonia at all. A distinct difference can be made out between the true pneumonia lung and this grippe lung. In the latter there is a varying condition of blood stasis, unaccompanied by râles; and if resolution takes place within three or four days, as it is quite apt to do, it is accompanied by distinct mucous râles, giving no time for the slow bronchial breathing that characterizes the latter stage of true pneumonia. It is true that during the continuance of the blood stasis there is more or less of an exudation, which, as it increases, will give some bronchial breathing, which is never so complete as in true pneumonia, and which condition will pass off as gradually, or even more so, than it is formed.

Among the other disorders, resulting from an attack of influenza, which can be explained on this same theory of local vaso-motor paralysis, may be mentioned disorders of the liver, kidneys and pelvic organs. They suffer from forms of hyperæmia (subacute or chronic) which are more or less prolonged; and in patients suffering from chronic Bright's disease, uræmic convulsions have been precipitated. We also meet with various disorders of the extremities, such as flushed or pallid fingers, abscesses of the limbs, a sa result of this nervous disturbance.

The peculiar forms of pulse and perverted action of the heart, extending in some cases to cardiac paralysis, are really nervous phenomena which are due to paralysis, either partial or complete, of the inhibitory apparatus of the heart.

Any attempt to classify these nervous and mental phenomena must be attended with much difficulty, because there are, in the first place, affections occurring in nervous tissue and organs, although strictly speaking not nervous diseases, as in the articular pains and other so-called rheumatic manifestations, which are quite apt to follow after an attack of *la grippe*, as well as various forms of neuralgias, hyperæsthesia and paræsthesia which occasionally leads up to complete anæsthesia. Secondly, there are affections which would be recognized as properly referred to the nervous system, as in cases of neuritis, meningitis, cerebritis, and combinations of these inflammatory affections. Thirdly, there are symptoms which, although manifested in a non-nervous organ, are directly traceable to a nervous origin, as in the diseased condition of liver, kidneys, pelvic organs, etc., and as in the false pneumonia already mentioned.

In many cases, patients who suffered from the disease early during the epidemic are suffering to-day from the profound prostration attendant as a sequela. Undoubtedly to the cardiac debility may be largely attributed this weakness.

Cases of insanity are mentioned as a result of *la*

grippe. Fortunately they are rare; but undoubtedly, if facts were gathered, we should find more cases than are recorded, and a certain per cent. of our suicides might safely be attributed to the same cause, as a natural sequence from the generally depressed condition of the nervous system. There are cases of active insanity recorded, as occurring at the onset of influenza, and during its height. But the most of them occur during the decline of the disease and during convalescence, and the most common form is one of melancholia in the majority of cases.

DR. DINSMORE: We lay too much to *la grippe.* We used to have cases of nervous exhaustion, nervous prostration and insanity before we had *la grippe;* and they are not more common now than then. In treating *la grippe,* we were probably in the habit of using the coal-tar products — phenacetine, acetanilid, antipyrine, etc. Sometimes they are used in immense doses (ten, fifteen or twenty grains to a dose); and the thought has occurred to me that possibly some of those weak hearts that have been attributed to *la grippe* might be traced to too much medication on our part. We must take into account other causes, and not lay everything to the door of this disease.

DR. CONN: Dr. Aldrich spoke of the delirium as being rather of a mild form and not at all permanent. I have in mind one case in which the delirium lasted pretty much all winter, and there has been a recurrence of the insanity this season, the patient being still under treatment. The patient suffers from delusions, yet I have reason to hope it will not prove permanent.

DR. RUSSELL: I wish to mention another case of insanity parallel with the one just spoken of by Dr. Conn. The two cases presented almost precisely the same symptoms, and the terminations were about the same at first. While the insanity in the case mentioned by Dr. Conn has returned to a certain extent, probably as the result of overwork and anxiety, the mind of the other patient remains perfectly clear, and the general health is fairly good.

DR. PALMER: I have given doses of acetanilid, antipyrine, etc., and have regretted it. It is not my impression that I have injured my patients materially. I have had these sequalæ — nervous depression, etc.; but I think not from the treatment. I fully believe that depression of the nerve centres is occasioned by *la grippe.* I never considered that the nerve centres were primarily affected; perhaps they were.

DR. W. T. SMITH: It is a microbe that causes the disease; and the product of the microbe acts on nerves and nerve centres. The evidence is obvious. As the first and most prominent symptom we find pain — pain in the head, in the back, in the limbs. Patients say they "ache all over." They do not all suffer in the same degree, but all have pain. In many cases we find disorder of the stomach, perhaps with vomiting. This is due to the toxic action of the microbe on the sympathetic plexus of nerves supplying the stomach. We find congestion of the lungs very marked, at times simulating pneumonia; and true pneumonia sometimes occurs as a complication. This congestion may be ascribed to the paralyzing action of the virus on the vaso-motor nerves of the lungs.

Other various local disturbances — as cystitis, otitis, irregularity of the heart — may be best explained on this theory, that it is the nervous system which is attacked, and that the various organic troubles are essentially affection of the nerves and nerve centres.

DR. M. C. LATHROP: In the height of the epidemic of 1890, I saw two cases of well-marked hemiparesis, which proved to be merely prodromatous to *la grippe;* the paralysis wholly disappearing upon the fuller development of the main disease.

APPENDICITIS.

DR. GEORGE H. SANBORN, of Henniker, presented a lengthy paper. He concluded as follows:

(1) That in all cases the physician is concerned only in the early recognition of the disease, the subsequent treatment to be left to the surgeon.

(2) That the catarrhal or mild form of appendicitis may be considered the only medical form of the disease; and delay in operating may be encouraged to a reasonable extent.

(3) All cases of appendicitis which, at the end of thirty-six hours from the beginning of the attack, show signs of increasing disease should be operated on.

(4) That the majority of so-called recoveries, treated medically, are not recoveries in the full sense of the word, but simply a respite which enables one to settle worldly affairs, and take out a life-insurance policy, in anticipation of a fatal termination.

(5) The early surgical treatment of appendicitis enables us to avoid in every case uncertain results of a spontaneous cure, the danger of recurrent attacks, and the often fatal general peritonitis in apparently mild cases.

DR. IRA J. PROUTY, of Keene, reported twelve cases of appendicitis during the year ending May 18, 1893.

He said, in closing: From my limited experience in the treatment of appendicitis, I realize that it is a very grave disease; and we should not consider that any case is to be a mild one, as oftentimes the symptoms change very suddenly. The early treatment of cases of this kind should be rest in bed, liquid diet and judicious use of salines. There is a question about the use of hot applications, but there is one thing sure, that in many cases they will relieve the pain almost immediately.

I do not believe in the use of opium in inflammation about the cæcum any more than I do in hernia. In a paper read before this Society last year I said that the use of anodynes, especially morphia hypodermatically, in cases of strangulated hernia, often caused a fatal termination, as the most acute symptoms are blurred or blotted out entirely, and a false sense of security is felt by both physician and patient, and an operation is deferred until it is too late. If the case goes on and symptoms become more pronounced, the question of expediency of operation arises.

There is no one rule to govern us. Each symptom must be carefully weighed before deciding; but we should remember that early operations are advisable, rather than to wait for the formation of a large abscess, that no one can fail to detect on percussion or through the rectum. We must not rely on rise of temperature, for we have seen in Case VI that the temperature was normal for forty-eight hours before operation, and the pain had subsided a great deal.

The presence of a tumor is one of the most reliable guides, but not infallible, for we cannot be sure of fluctuation on account of the soft and yielding character of the contents of the abdominal cavity, and, moreover, muscular rigidity might be mistaken for the presence of a tumor.

As has been said, all the symptoms must be weighed carefully. The most marked cases there will be no doubt about, nor of the mild ones; but it is those of a medium nature that will cause the surgeon the most anxiety as to what manner of treatment is the most advisable.

The question of treatment of the stump, after removal of the appendix, has been much discussed. Some surgeons insist that the only safe way is to turn in the peritoneal edges and stitch with a Lembert suture; others always apply a ligature and cauterize close to the cæcum; while others merely apply a ligature and amputate a little distance from it, as has been the method used in all the cases herein reported. I believe it makes no material difference how it is accomplished, if the opening is only closed.

In the recurrent cases it is better to operate between the attacks, when the patient is in good condition and there is no inflammation, than to run the risk of waiting until there is suppuration and possibly septic poisoning, and until the patient is in poor condition to withstand an operation which must be done, perhaps hurriedly and with bad surroundings, in order to save life. After a patient has had two attacks of appendicitis, I advise the removal of the offending member, as I believe this is the only sure means of cure.

After operation for this disease, I always recommend the patient to wear an abdominal supporter in order to avoid ventral hernia; especially, if, like some of the cases here given, they are obliged to do heavy lifting. We should always insert three rows of sutures, instead of involving the peritoneum, muscles and integument in row.

By doing the operation under the strictest aseptic precautions, the mortality is growing less every year; and if a diagnosis is made early in the case, and operation (if found necessary) not put off too long, we can expect good results in nearly all these cases that formerly were invariably fatal.

COCAINE.

DR. HENRY DODGE, of Penacook, reports several cases of the use of cocaine in diseases of the bladder and stomach.

My theory of the method of its operation in diseases of the bladder is this, namely, that its local application to the mucous membrane with which the bladder is lined produces anæmia of this membrane in the same manner as we have all, no doubt, noticed its operation when applied to any inflamed conjunctiva, and that, by thus controlling the blood-supply to the inflamed part, it allows nature to assert itself and arrest the inflammation.

With regard to its use in diseases of the stomach, I believe it to have an indication in a wide range of diseases. I shall only endeavor to name a few of the more important. In cancer of the stomach, given in doses up to half a grain, many times it will control pain and stop vomiting; its great advantage over morphine in this class of cases being that it does not constipate the bowels. For vomiting of pregnancy, exhibited in minute doses at frequent intervals, as well as for obstinate vomiting from any other cause, it is of great value. I recall one patient with whom a great many prescriptions had been tried without success, who was almost instantly relieved by a dose of one-sixtieth of a grain given in water every fifteen minutes. For the relief of gas in the stomach, combined with bromide and codeine, I have found it to be of benefit in a large percentage of cases, also in gastralgia given in full doses every two to four hours. It is also of value as an ingredient of almost any combination for the relief of sick or nervous headache, being superior to the minute dose of morphine so often used. It is always well when using it in a new case to be exceedingly cautious, as a great many individuals, from an idiosyncrasy, are exceedingly susceptible to its effect.

DR. MEGRATH: I have not had any experience in the use of cocaine in diseases of the bladder, but in cases of pregnancy I have used it with marked success. I had one case in which the patient had not for some time been able to retain anything to speak of on the stomach. I recommended cocaine; after that she retained food. I have used a great deal of it with carbolic acid in extracting teeth. Patients say it does not hurt much; I never used enough to know that I got bad effects from its use. I have never used it in surgery, except in the removal of toe-nails and small growths. I should only advise its use for minor operations.

DR. LEET: I have used cocaine for more than eight years and for various operations. I have yet to see the first unpleasant result from its use.

DR. ALLEN: I am a thorough believer in cocaine; and if we leave the discussion where it is, I fear we shall leave a wrong impression. I have used it hundreds of times and for many things; for extracting teeth, amputation of fingers, removal of large wens, and in an operation on a large gland where an incision three and one-half inches deep was required; and I have never seen the first unpleasant result — I do not say *dangerous*, I say *unpleasant*. Now, am I wrong in using this? Am I careless in using it? I ask the result of the use of cocaine? Have you had any unfortunate results in its use? If so, for the sake of suffering humanity and your fellow practitioners tell us this afternoon. I have seen cocaine used many times, and I have seen ether used; and have seen more unpleasant results from the use of ether than from cocaine. Then why not caution each other to be careful in the use of ether as well as cocaine?

DR. DODGE: I have used cocaine in a great many cases and in a great many ways of which I have not spoken in my paper. I have used it, as others have, hundreds of times for the extraction of teeth; I have used it for opening abscesses; and, as has been said, I have not, in any of my cases, seen the first unpleasant result. I recall, however, that when I was in college, there was a student there who had a slight operation to be performed on his eye. He went to a physician, and a small quantity of a four per cent. solution, I believe, was injected. The operation was not performed, as violent symptoms of poisoning came on almost instantly. The physician immediately procured a hack and accompanied the young man to his boarding-place, remaining with him several hours, and to say the least, the symptoms were *decidedly unpleasant*. Therefore, I say we must be careful, as there are many cases of idiosyncrasy; and if we chance to find one of those cases we should be prepared for it. I have used it with caution even in so simple an operation as the extraction of teeth. I do not wish to be understood as regarding cocaine to be as dangerous as ether.

Other addresses and papers were the following: "Philanthropic Medicine," by Dr. E. F. McQuesten; "Use of Forceps," by Dr. Bradford Allen; "Report on Gynæcology," by Dr. D. M. W. Russell.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, OCTOBER 5, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Edstor, and all books for review, should be addressed to the Edstor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

TWENTY-FIRST ANNUAL REPORT OF THE LOCAL GOVERNMENT BOARD, 1891-1892: SUPPLEMENT CONTAINING THE REPORT OF THE MEDICAL OFFICER.[1]

In transmitting his Annual Report, Dr. Thorne Thorne recognizes the valuable services of his predecessor, Dr. George Buchanan, who had served the Government for thirty years as Medical Inspector, and as Chief Medical Officer of the Local Government Board. "Those alone," he says, "who have had the opportunity and pleasure of working under his direction, can appreciate to the full the important influence for good, which his labors have had; and they alone can realize how much the Medical Department owes to the example which he set as an earnest worker and director, who never ceased to claim that all true sanitary progress must be based upon accurate and scientific research into the etiology of disease."

The report shows that the vaccination returns for England for the year are not very satisfactory. After deducting from the total number of births in England and Wales for the year (885,909) those who had died unvaccinated, and those who were found to be insusceptible, and others whose vaccinations were postponed, there still remained 9.6 per cent. unaccounted for. For a period of twelve years (1872-1883) the percentage of children unaccounted for was quite uniformly, about 4.5 per cent. but it has steadily risen since 1883. The greatest delinquencies were in Leicestershire 43.9 per cent., Northamptonshire 31.8 per cent. and Bedfordshire 26.5 per cent. These figures "indicate a further increase in the amount of failure to comply with the law relating to vaccination, a circumstance which becomes serious in view of the growth of smallpox, which is in progress in many parts of the country." At the Animal Vaccine Station in Lamb's Conduit Street, London, 336 calves were vaccinated during the year, and from these 7,529 persons received primary vaccination.

[1] London: Eyre and Spottiswoode, 1893, pp. xvi, 212.

Among the local inquiries made by the medical inspectors during the year there is one which is worthy of notice as confirming a previous report of the same Board upon the origin of scarlet fever. This outbreak was traced to a milk-supply, and the Board concludes that, so far as it goes, the inquiry materially strengthens the conclusions arrived at by the Medical Department of the Board in the Hendon case, that there is a disease in the cow which is capable of being transmitted in the form of scarlatina to the consumers of milk.

A considerable part of the report is devoted to an inquiry by Dr. Parsons upon the subject of the transportation of town manures and their effect upon health.

That part of the report which is of most interest to the medical profession is the portion which embraces the auxiliary scientific investigations of Dr. Klein and others upon the bacteriology of diphtheria, and other allied subjects. He found that "so-called" scarlatinal diphtheritis occurring in the *early days* of scarlet fever attack, is not, judged from the bacteriological standpoint, diphtheria; and, on the other hand, that similar manifestations, whether of diphtheritic or croupy type, occurring in the *later stages* of, and during *convalescence* from scarlet fever, are almost invariably true diphtheria. But, he also finds, in the majority of cases examined by him, that membranous croup of the larynx or trachea, though altogether dissociated clinically from diphtheria, is to be regarded as essentially that disease; indeed, so far he has only met with a single instance of croup not related clinically to diphtheria or to scarlatina, in which he was unable, with the material at his disposal, to demonstrate the presence in the membrane of bacillus diphtheriæ.

Dr. Klein also reports the results of experiments in which he sought to induce erysipelas and vaccinia simultaneously in the calf. The vaccinia took and ran its course, while the microörganism of erysipelas failed entirely. He therefore concluded that calves were insusceptible to erysipelas. The practical bearing of this experiment upon the practice of animal vaccination is sufficiently plain.

Other simultaneous inoculations of the different microbes resulted variously.

Other important investigations are reported upon in this volume, as follows: "On the Products of Bacillus Pyocaneus as affecting the Development of Tubercle," by Dr. Klein; "On the Chemistry of Diphtheria," by Dr. Sidney Martin; "On the Chemistry of Susceptibility and Insusceptibility," by Dr. Hamer; and upon "The Effect of Pus upon the Vitality of Bacteria," by Dr. Andrewes.

INFANTILE INSURANCE.

The practice of insuring the lives of children has become so prevalent among the lower classes in England, that various official inquiries have been held and attempts made to restrict it. The National Society for the Prevention of Cruelty to Children brings many parents into court charged with maltreating or neglecting their children, and among these cases are many in

which it appears that the lives of the children are insured. In few is there a deliberate intention on the part of the parent or parents to direct murder, but in many the neglect is so outrageous that it is evident they follow Clough's decalogue, "Thou shalt not kill but needst not strive, officiously to keep alive." They consider the death of a child a good riddance; and if the child is likely to die any way, it seems only good business to make something out of its death. To what extent this infantile insurance is responsible for this cruelty and neglect it is very hard to determine. In some cases reported to the authorities the evidence is strong that children have been done to death as a business enterprise.

Is there anything at all similar to this with us? The lives of children, especially among our foreign born population, are not infrequently insured, but it is very uncommon to hear of a case in which a death has been hastened in order to get the insurance. Such insurance is generally for burial purposes only, and the whole amount goes to the undertaker. The children, or for that matter adults as well, are often not insured until they show signs of ill health. When they appear sick the parents or friends get a policy in some company not requiring a medical examination, but making some provision that the insured shall not die of phthisis or other long standing disease within a certain time. If the diagnostic or prognostic powers of the applicants were better, such companies would not make much money. Such insurance for burial purposes only, is entirely a different matter from the infantile insurance in England, where the fact that a child is insured increases the advantages of having it out of the way, and influences its treatment by its parents.

MEDICAL NOTES.

Harvard Medical School. — The Harvard Medical School has an entering class this year of somewhat over ninety — a falling off of about twenty from the number last year.

The Index Medicus. — According to a count made by the *Medical News* there are eleven hundred and nineteen medical journals and transactions regularly indexed in the Index Medicus. Besides these there are also the semi-scientific and commercial papers catalogued. Certainly medical ideas do not want for means of utterance.

The Cholera. — Cholera reports continue to be favorable. In England no new cases have been reported since September 20th. In Hamburg the epidemic is rapidly subsiding there being but two or three new cases each day. There have been one hundred and twenty cases with fifty-nine deaths so far. In Antwerp the disease is also declining, Palermo and Leghorn are still infected and eight or ten new cases occur daily. In Roumania and Russia the infection is still widespread and shows no marked subsidence, though the death-rate has not increased.

Faculty of the Army Medical School. — The following officers have been appointed as the faculty of the new Army Medical School established in Washington: Colonel Charles H. Alden, assistant surgeon general, U. S. A., president of the faculty, and lecturer on the duties of medical officers; Lieutenant-Colonel William H. Forwood, deputy surgeon-general, U. S. A., professor of military surgery; Major John S. Billings, surgeon, U. S. A., professor of military hygiene; Major Charles Smart, surgeon, U. S. A., professor of military medicine and director of the chemical laboratory; Captain Walter Reed, assistant surgeon, U. S. A., professor of clinical and sanitary microscopy and director of the pathological laboratory; Captain Julian M. Cabell, assistant surgeon, U. S. A., assistant to professor of military surgery and instructor in hospital corps drill. Instruction will be given in the Army Medical Museum, commencing on the first day of November.

Colorado Medical Library Association. — The physicians of Denver, Col., have formed a Medical Library Association for the advantage of physicians in that city and throughout the State. Owing to their remote position they have small opportunity to enlarge their collection of books, and request societies and physicians who may be so inclined to send copies of their publications to the Secretary, Henry Sewall, M.D., in care of the Public Library, Denver.

The Influence of Albinism on the Eye. — Dr. George M. Gould is investigating the extent and nature of the influence of albinism upon the eyes, and requests any physician who has had albinotic patients to send him as exact information as possible as to the condition of the eyes in those cases. Blank forms indicating the particular knowledge desired will be sent upon application and necessary expenses incurred by correspondents for postage, etc., will be paid.

Patent Medicines in England. — The sale of patent medicines in England has but few restrictions provided the vendor takes out a license for his trade. The annual receipts of the government from the issue of these licenses is nearly a million dollars.

The Persistence of the Contagion of Diphtheria. — At a recent meeting of the Medical Society of Lyon, Moncel reported the result of fifty cases of convalescence from diphtheria which were examined for the Löffler bacillus. In all cases of a lingering post-diphtheritic coryza there were bacilli found in the nasal mucous membrane, in some instances for as long as fifty-three days.

The Cranium of Sophocles. — A skull has been discovered at Deceleia which is believed to be the skull of Sophocles, but as several sceptics have doubted its genuineness, it has been referred to Professor Virchow, who will carefully examine it and decide if it is really Sophocles' or merely somebody that looked like him.

NEW YORK.

More Board of Health Physicians. — At a meeting of the Board of Estimate and Apportionment,

held September 28th, an appropriation of $3,000 was made to the Board of Health for the employment of fifteen extra physicians for the free vaccinating corps. At the same meeting $539,248 was voted for public-school improvements, and $50,000 for the further purification of the Croton water-shed.

Yellow Fever Relief. — The steamship *Algiers* has been fitted up to carry provisions and other supplies to the yellow fever sufferers at Brunswick, Ga., and Dr. A. N. Bell, editor of the *Sanitarian*, is to act as medical officer of the expedition.

Hereditary Polydactylia. — Charles Hodge, a lad thirteen years old, of Newark, N. J., who was born with twelve fingers and fourteen toes, was recently relieved of the extra members at St. Barnabas Hospital. It is stated that this superfluity of fingers and toes is a hereditary characteristic on the maternal side, running back for several generations, and that among the family relics is a bottle of alcohol in which are preserved a number of fingers and toes removed from various ancestors.

Mortality. — The bulletin of the State Board of Health for August, shows that during that month 11,037 deaths were reported in the State, which represents an annual death-rate of 21.20 per thousand of the estimated population. For 150 cities, villages and populous towns having a population of 4,785,000 it is 22.75, and for the rural portion of the State, 15.40. There was an increased mortality in the Mohawk Valley and in the western districts of the State, and this was chiefly due to diarrhœal diseases, which were less prevalent than usual in New York city and the eastern districts.

Miscellany.

MR. ERNEST HART ON THE "CODE."

The address of Mr. Ernest Hart at the Pan-American Congress was devoted chiefly to the consideration of the necessity for a code of ethics among physicians. Quoting Sir Astley Cooper's remark that success in the practice of medicine depended upon "the physician's knowledge, his continuous industry and his moral character," he said they might form a very adequate summary of the conduct, private dignity and etiquette of medical men in relation to public affairs.

"Just at present both in England and in this country the question is frequently asked whether it is necessary to add to the simple rules of ethics which direct the conduct of gentlemen a detailed code of medical etiquette and ethics. I think it is clear that never at any time, if there were a necessity for such a code, could that necessity be nearer or more apparent than at the present moment. Under the stress of a developing civilization, with the temptations induced by the enormous facilities for advertisement and the profit to tempt the medical man from the ancient bond of modesty and diffidence, there is now the strongest reason for fortifying every professional man against the inroads of modern temptations, by a code so precise, by deductions so exact, so comprehensive, and so far-reaching that he shall never be overcome by such temptations, but shall be able to know at once, and under all circumstances, what is his duty, what is the rule of his profession in any one particular case in which he may be tempted.

"Such a code as this does exist, and upon a logical and strong basis, for the benefit of the public as much if not more than for the benefit of the profession. It is not a trade-union business for the benefit of a private class interest, but is, on the contrary, a movement for the interests of the public in general far more than for the medical profession.

"We cannot in the face of past experience and medical precedents safely cast aside a code of ethics which has been carefully and deliberately reached regarding the especial application of ethical principles to medical life. For example, a medical man is prohibited from consultation with quacks. Now Dr. Johnson's definition of the word is, '*Quack—a boasted pretender to arts which he does not understand; a boasting pretender to physic; one who proclaims his own medical abilities in public places; an artful tricking practitioner in physics.*' Thus, there is no distinction between the quacks who have medical degrees and the quacks who have not. Moreover, no respectable physician should advertise. That is a method of the quack. Advertisments in any form, whether in the way of an interview by a representative of the secular press, or by published letter, by the description or criticism of some new alleged system of treatment, or by divulging the secrets of the sick-room are in direct contravention of medical etiquette, and deserve the scorn and reprobation of every honorable person as well as every honorable medical man. For a medical man to possess or profit by any secret remedy is not only an offence against professional morality, but is a source of public danger as well. The physician owes his knowledge as well as his capacity for practising medicine to the open communications of bygone practitioners, and a new treatment, drug, or medical dogma, is like a doctrine, dogma, or deduction in theology, both are alike the common birthright of humanity, and any man who for profit keeps as a secret a new treatment or a new doctrine is a traitor not only to his profession but to all humanity. The physician who trades in or palters with secret remedies is untrue to his obligations, unfaithful to the world, a shame to himself, and a dishonor to his calling. Nor can the alleged value of any so-called secret remedy be held to condone such an offence."

THE MADRID ACADEMY OF MEDICINE PRIZES.

The Academy of Medicine, of Madrid, has offered for the year 1894–5 two prizes open to public competition: The Academy Prize of three hundred dollars, a gold medal and the diploma of a corresponding member of the Academy, for the best essay on the "Treatment of the Different Clinical Forms, Accidents and Complications of Diabetes, based upon the Writer's Observations." The essay is to be written in Spanish or Latin. The Alvarez Alcala Prize of one hundred and fifty dollars, and corresponding membership in the Academy. Subject: "Surgical Intervention in Intestinal Obstruction." The essay to be written in Spanish, French or Latin.

The essays must be in the Secretary's possession by the first of May, 1894.

BAGDAD PHARMACY.

A CORRESPONDENT of the *Pacific Medical Journal* gives the following account of the attractive pharmacy of Bagdad: "The practice of medicine is in a degraded state, and patients are constantly bargaining with the physician for a cure, and refuse to pay for advice pure and simple or for an examination, no matter how much skill or time it may involve. When a wealthy person is taken ill all the doctors and magicians in the city are sent for an hour or two apart, and without each other's knowledge, and their advice is followed or not, as it suits the fancy of the women neighbors, who always try to pump the doctor by fair means and foul. If a prescription is sent to the drug store it will probably be put up in an old, unwashed cod-liver-oil bottle that has lain perhaps for months in some dirty corner, and then an old rag and some paper is made to do service as cork. This is not overdrawn. Sometimes the prescription may be put up in a cup without any cover at all. The percentage-on-prescription system has here been developed and refined as nowhere else. There are benevolent societies whose secretary receives as salary a certain amount on every prescription he has to settle for, and then he and the doctor agree that a new prescription shall be written for every dose!"

LIGATURE OF THE INTERNAL ILIAC ARTERIES FOR PROSTATIC ENLARGEMENT.

ACTING upon the analogy offered by the diminution in size of mammary and uterine myomata after diminishing their local blood-supply, Bier,[1] of Kiel, undertook a similar treatment in cases of enlarged prostates. By far the larger part of the blood-supply to the prostate gland comes from the internal iliac arteries. These are most successfully ligated just after they leave the common iliac trunks.

The extra-peritoneal method was found the surest, and in well-etherized patients no harder than the transperitoneal operation with its extra danger. Even in cases where both arteries are to be ligated, Bier advises bilateral incisions rather than the median laparotomy. His incision is made about two fingers' breadth above Poupart's ligament and extends in a curved direction upwards toward the ribs, the convexity being about three fingers' breadth inside of the anterior superior spine of the ileum. The parietes are divided to the peritoneum, and after all bleeding is stopped, this is peeled away from the wall of the pelvis till the artery is reached. It is essential to have the pelvis well elevated. Owing to the free anastamoses in this region no circulatory disturbance was noticed in any case.

The readiness with which such wounds as these heal, and the possibility of avoiding sepsis are greatly to the advantage of this treatment over direct operation upon the prostate. The cases reported certainly show that a measure of relief is to be expected. The patients, aged from sixty to sixty-nine, all presented typical cases of prostatic enlargement, frequent difficult micturition, residual urine, purulent cystitis and palpably enlarged glands. After the operation, the size of the prostate steadily diminished, in one case from the size of a hen's egg to the normal, inside of four months. Another case, in which catheterization had been necessary and the gland so large that in digital examination by the rectum the upper border could just be reached, presented the following condition sixty-four days later. "The patient passes all his urine himself and without delay at desire. The upper border of the prostate is now easily passed without ether. The urethra is now only twenty-two centimetres long. Although there is considerable enlargement still, and the patient is obliged to pass water several times each night, there is an undoubted diminution in size of the gland, and the residual urine has steadily diminished in amount from one hundred and fifty cubic centimetres to between thirty and forty." One case proved fatal from peritonitis, but had already shown an improvement in the urinary symptoms, not requiring catheterization as before. The autopsy showed a glandular hypertrophy of both halves, but less upon the left, the only side operated upon. Injection of the right hypo-gastric artery caused much less filling on the left side than on the right.

[1] Wiener Klinische Wochenschrift, No. 32, 1893.

OBITUARY.—DAVID SYLVESTER FOGG, M.D.

DR. DAVID SYLVESTER FOGG, who died of chronic myelitis, August 29th, aged seventy-two years and five months, was born in Meredith, N. H., March 30, 1821. His parents were well-to-do, energetic people, his father and grandfather patriotic, and identified with the military defence of the country. Dr. Fogg obtained his education in Holmes Plymouth Academy and in Dartmouth College. He studied medicine with Dr. Josiah Crosby, of Manchester, N. H., and obtained his degree of Doctor of Medicine from Dartmouth Medical School in 1845. In 1846 he located in South Dedham, and commenced the practice of medicine, which extended through the village and reached into the surrounding towns. He soon became noted for his skill, and was often called in consultation.

He was a member of the Norfolk County Medical Society and of the Massachusetts Medical Society and had been several times elected a councillor of the latter body. He was also a member of the American Medical Association.

In 1861 he was a volunteer surgeon in the Peninsular Campaign, under General McClellan. On the organization of the Board of Enrolment he was appointed by President Lincoln, a surgeon of the Board for the Seventh Massachusetts Division, head-quarters at Concord, Mass. After he had held that office for three years he then resumed his practice in Norwood. He was a friend to the public schools, and in 1878 was a member of the Dedham School Committee, which position he had occupied once before. He defended the schools in town meetings, and was always in favor of a liberal policy for their support, and an advocate of advanced methods of teaching. He was not a frequent speaker, but always spoke to the point, with practical good sense, supporting needed improvements and favoring municipal economy.

In 1847 he married Mary B., youngest daughter of Rev. Thomas W. Tucker, who was then stationed as pastor of the Methodist Episcopal Church, at Dorchester, Mass. Eight children were born of this marriage, six of whom, including his son Dr. Irving S. Fogg, with the widow, survive him.

Dr. Fogg was of a social disposition, a good neighbor, and during his long professional career made many warm friends. His stately form and commanding presence will long be missed. He was an early member of Orient Lodge, F. & A. M., and at his funeral that order took charge of the remains after the close of the services at the house. His professional brother Dr. John P. Maynard, of Dedham, attended Dr. Fogg in his last illness; and his friend Dr. A. P. Clarke, of Cambridge, also visited him.

A. P. C.

OBITUARY. — THOMAS F. SHERMAN, M.D.

DR. THOMAS F. SHERMAN died in Boston, September 26th, at the age of thirty-seven, after a long illness.

On leaving the Harvard Medical School he served for a year as house-physician at the Massachusetts General Hospital, and then immediately entered upon private practice. A man of great tact and kindly disposition with a keen sense of humor, quick to see through shams, patient in investigation and thoroughly loyal to patients and associates, his death was a loss to the community. He had ambition, but of a kind that was ready to push itself forward by means of work well done, and by that alone. Not a ready writer, and anxious to digest his work before giving it to the public, he had published little, but he had carefully collected notes which would in time have led to publication. A paper of his in the coming Report of the Children's Hospital is highly spoken of. In his capacity of assistant in the Harvard Medical School, he had proved himself capable of giving instruction, and he was much liked by the students. He had made an unusually efficient secretary for the Society for Medical Observation, and while not taking part in debate as often as some members, yet he was commonly present, and when he did speak it was generally to say something that he had well considered. Appreciation for his services was shown both by the Children's Hospital, and by the Hartford Life and Annuity Insurance Co., for which he was local examiner, by their declining to accept his resignation, preferring while his life lasted to allow his work to be done by substitutes.

Although in no sense a politician, his public spirit led him to take a warm interest in the political questions of the day and to have a reason for his vote. He was a Freemason and had held office in the order.

A hard worker, Dr Sherman made the mistake of doing seven years' continuous work, broken only by an annual week at the camp of the militia battalion of which he was hospital steward. To remonstrances from relatives, the answer was always that while he was young was the time for work. In later life he would have long vacations. By this unremitting labor he had secured some fine professional appointments, and the basis of a good practice. During the winter of 1891–92 some of his associates observed that his work was done with not quite the old vigor, but such was the man's persistence that when the break really came, it came once for all. During the last year and more he was making a gallant fight for life though himself of opinion that the end was inevitable. He was not married.

Dr. Sherman was so unassuming that it took one a long time to appreciate all the fine points of his character, but he was a man who will long be missed by those who were so fortunate as to know him well.

METEOROLOGICAL RECORD,

For the week ending September 23, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..17	29.83	58	64	51	91	77	84	W.	W.	12	13	C.	O.	.01
M..18	29.92	58	66	51	91	75	83	W.	W.	12	10	F.	O.	
T..19	29.75	64	69	58	89	95	92	S.W.	W.	11	3	O.	C.	.19
W.20	29.86	66	74	59	95	70	82	W.	W.	8	13	C.	C.	
T..21	30.06	56	65	47	81	66	74	N.W.	N.	12	5	C.	O.	
F..22	29.92	57	67	47	88	90	89	N.W.	N.W.	2	14	O.	O.	
S..23	29.88	64	69	58	89	94	92	N.E.	S.W.	5	11	C.	O.	.02
☞														.22

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 23, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	702	331	22.12	9.66	11.62	.98	5.88
Chicago	1,438,000	452	240	28.60	9.02	15.62	3.96	4.84
Philadelphia	1,115,562	337	145	17.98	9.86	7.83	2.61	4.64
Brooklyn	978,394	392	204	22.25	8.00	16.50	1.25	3.00
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	197	81	18.36	14.28	10.71	4.08	2.55
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	120	40	19.92	14.11	7.47	4.15	4.98
Cincinnati	305,000	88	27	18.24	11.40	5.70	6.84	4.56
Cleveland	290,000	89	44	31.36	6.72	15.68	4.46	8.96
Pittsburg	263,709	94	51	41.94	7.42	13.78	7.42	3.18
Milwaukee	250,000	102	60	33.33	6.86	22.54	5.88	3.92
Nashville	87,754	35	17	8.58	2.86	—	—	—
Charleston	65,165	—	—	—	—	—	—	—
Portland	40,000	21	3	—	28.56	—	—	—
Worcester	96,217	26	15	26.95	3.85	19.25	3.85	3.85
Fall River	87,411	49	32	32.64	6.12	30.60	2.04	—
Lowell	87,191	45	15	8.88	11.11	—	2.22	2.22
Cambridge	77,100	23	9	30.45	21.75	17.40	—	4.35
Lynn	62,656	25	8	24.00	16.00	4.00	8.00	4.00
Springfield	48,684	18	7	22.22	27.77	22.22	—	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,888	19	15	57.86	—	52.60	—	—
Holyoke	41,278	17	8	52.92	11.76	24.40	—	17.64
Salem	32,233	14	7	28.56	—	—	21.42	7.14
Brockton	32,140	4	2	—	25.00	—	—	—
Haverhill	31,396	12	4	16.66	25.00	—	8.33	8.33
Chelsea	30,264	5	1	—	20.00	—	—	—
Malden	29,394	6	2	33.33	—	33.33	—	—
Newton	27,556	—	—	—	—	—	—	—
Fitchburg	27,146	2	2	—	—	—	—	—
Taunton	26,972	11	3	18.18	—	18.18	—	—
Gloucester	26,688	10	5	10.00	40.00	—	—	—
Waltham	22,058	5	1	—	20.00	—	—	—
Quincy	19,642	5	2	40.00	—	40.00	—	—
Pittsfield	18,802	3	2	66.66	—	66.66	—	—
Everett	16,585	3	1	33.33	—	—	—	—
Northampton	16,331	6	1	33.33	16.66	33.33	—	—
Newburyport	14,073	7	2	—	14.28	—	—	—
Amesbury	10,920	2	1	50.00	—	50.50	—	—

Deaths reported 2,973: under five years of age 1,400; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fevers), 711, diarrhœal diseases 393, consumption 298, acute lung diseases 206, diphtheria and croup 132, typhoid fever 86, whooping-cough 35, scarlet fever 28, cerebro-spinal meningitis 17, malarial fever 7, measles 6, erysipelas 3, small-pox 3.

From whooping-cough New York 10, Chicago, 7, Philadelphia 6, Pittsburg 4, Brooklyn 3, Washington, Cincinnati, Cleveland, Nashville and Lynn 1 each. From scarlet fever Pittsburg 10, New York and Chicago 4 each, Philadelphia and Lowell 2 each, Boston, Milwaukee, Cambridge, New Bedford, Everett and Woburn 1 each. From cerebro-spinal meningitis Chicago 6, New York and Washington 2 each, Philadelphia, Brooklyn, Boston, Cleveland, Cambridge, Lynn and Gloucester 1 each. From malarial fever New York, Brooklyn and Nashville 2 each, Philadelphia 1. From measles New York 3, Chicago, Washington and Pittsburg 1 each. From small-pox New York 3.

In the thirty-three greater towns of England and Wales with an estimated population of 10,327,846, for the week ending September 16th, the death-rate was 19.8. Deaths reported 3,919; diarrhœa 518, whooping-cough 89, diphtheria 83, fever 79, scarlet fever 43, measles 32, small-pox (Birmingham and Bradford 2 each, London, Leicester and Oldham 1 each) 7.

The death-rates ranged from 11.2 in Derby to 30.1 in Burnley; Birmingham 21.7, Bradford 24.7, Bristol 19.2, Croydon 14.8, Hull 26.0, Leeds 25.7, Leicester 16.4, Liverpool 25.8, London 17.5, Manchester 20.8, Newcastle-on-Tyne 28.6, Nottingham 18.7, Portsmouth 20.3, Sheffield 23.3, Sunderland 19.8.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 23, 1893, TO SEPTEMBER 29, 1893.

By direction of the Secretary of War, leave of absence for four months, on surgeon's certificate of disability, is granted LIEUT.-COLONEL FRANCIS L. TOWN, deputy surgeon-general, U. S. A.

FIRST-LIEUT. CHARLES F. KIEFFER, assistant surgeon, is relieved from further duty at Fort Meade, South Dakota, and from temporary duty at Fort Yellowstone, Wyoming, and will report to commanding officer at Fort Assiniboine, Montana, for duty.

FIRST-LIEUT. WM. F. LEWIS, assistant surgeon, will, upon being relieved from duty at Fort Assinniboine, Montana, by FIRST-LIEUT. KIEFFER, report to commanding officer, Fort Apache, Arizona, for duty.

FIRST-LIEUT. BENJAMIN BROOKE, assistant surgeon, will proceed at once from Fort Leavenworth, Kansas, to Fort Brady, Michigan, for temporary duty during the absence on leave of Assistant Surgeon PAUL CLENDENIN, U. S. A.

Leave of absence for one month, to take effect upon the arrival of Assistant Surgeon BENJAMIN BROOKE, is granted CAPTAIN PAUL CLENDENIN, assistant surgeon, U. S. A.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SIX WEEKS ENDING SEPTEMBER 16, 1893.

MURRAY, R. D., surgeon. To proceed to Pensacola, Fla., for temporary duty. August 10, 1893. To rejoin station. August 18, 1893. To proceed to Brunswick, Ga., for temporary duty. September 14, 1893.

BAILHACHE, P. H., surgeon. To assume charge of inspection of immigrants. August 14, 1893. Detailed as chairman, Board for Physical Examination of keepers of Life Saving Stations August 18, 1893. Relieved from duty as inspector of immigrants. August 22, 1893. Detailed as chairman, Board for Physical Examination of Officers, Revenue Marine Service. September 12, 1893.

PURVIANCE, GEORGE, surgeon. To report at Bureau for temporary duty. August 6 and 10, 1893. Detailed as chairman, Board for Physical Examination of Surgeon John Vansant. August 28, 1893.

VANSANT, JOHN, surgeon. Ordered before Board for Physical Examination. August 31, 1893.

HUTTON, W. H. H., surgeon. To report at Brunswick. August 10, 1893. To proceed to Cape Charles Quarantine as inspector. August 12, 1893. To proceed to Brunswick, Ga., for temporary duty. August 12, 1893. To rejoin station, Detroit, Mich. September 10, 1893.

HAMILTON, JOHN B., surgeon. Granted leave of absence for four days. August 16, 1893. Granted leave of absence for ten days. August 29, 1893.

SAWTELLE, H. W., surgeon. Detailed as member, Board for Physical Examination, Life Saving Station. August 18, 1893. Detailed as member, Board for Physical Examination of Passed Assistant Surgeon H. T. Goodwin. August 22, 1893. Detailed as member, Board for Physical Examination, officer Revenue Marine Service. September 12, 1893.

AUSTEN, H. W., surgeon. Detailed as recorder, Board for Physical Examination of Surgeon John Vansant. August 28, 1893. To represent the Service at meeting, Pan-American Medical Congress. September 5, 1893.

GASSAWAY, J. M., surgeon. To inspect local quarantine at Pascagoula, Miss. August 23, 1893.

MEAD, F. W., surgeon. To proceed to Chicago, Ill., for temporary duty. August 9, 1893.

CARTER, H. R., surgeon. To proceed to Fernandina, Fla., to inspect quarantine and return to Bureau. August 7, 1893. To proceed to Pensacola, Fla. August 10, 1893. To proceed to Brunswick, Ga., for temporary duty. August 12, 1893. To report at Bureau. August 31, 1893. To represent the Service at Pan-American Medical Congress. September 5, 1893. To proceed to Philadelphia, Penn., and Reedy Island Quarantine. September 9, 1893. To proceed to Cape Charles Quarantine and assume command. September 11, 1893. To report at Bureau for temporary duty. September 15, 1893.

WHEELER, W. A., surgeon. Detailed for duty at Camp Loi. August 14, 1893. To rejoin station. August 22, 1893. Detailed as recorder, Board for Physical Examination, Passed Assistant Surgeon H. T. Goodwin. August 22, 1893.

CARMICHAEL, D. A., passed assistant surgeon. Granted leave of absence for thirty days. August 16, 1893.

PECKHAM, C. T., passed assistant surgeon. Granted leave of absence for twenty days. August 10, 1893.

GLENNAN, A. H., passed assistant surgeon. To proceed to Reedy Island Quarantine for temporary duty. August 30, 1893.

MAGRUDER, G. M., passed assistant surgeon. To proceed to Pensacola, Fla., as inspector. August 10, 1893. To proceed to Brunswick, Ga., for temporary duty. August 23, 1893. To proceed to Beaufort, S. C., as inspector. September 9, 1893.

KINYOUN, J. J., passed assistant surgeon. Detailed as inspector, New York Quarantine. August 12, 1893. Detailed as member, Board for Physical Examination of Passed Assistant Surgeon H. T. Goodwin. August 26, 1893.

GOODWIN, H. T., passed assistant surgeon. Granted leave of absence for thirty days. August 10, 1893. To proceed to Louisville, Ky., for duty. August 15, 1893. Ordered to appear for examination as to physical condition. August 22, 1893.

VAUGHAN, G. T., passed assistant surgeon. To represent Service at meeting of Pan-American Medical Congress. September 5, 1893.

GEDDINGS, H. D., passed assistant surgeon. To report at Bureau for temporary duty. September 13, 1893. To proceed to Brunswick, Ga., for temporary duty as inspector. September 15, 1893.

CAFER, L. E., assistant surgeon. To proceed to Savannah, Ga., for duty. August 25, 1893.

DECKER, C. E., assistant surgeon. To proceed to San Francisco Quarantine for temporary duty. September 3, 1893.

NYDEGGER, J. A., assistant surgeon. To proceed to Jersey City, N. J., for temporary duty. September 2, 1893. To rejoin station. September 9, 1893.

OAKLEY, J. H., assistant surgeon. To proceed to Quebec, Can., for duty. August 26, 1893.

NORMAN SEATON, assistant surgeon, To proceed to New York, N. Y., for temporary duty. August 18, 1893. To rejoin station. August 23, 1893. To proceed to Jersey City, N. J., for temporary duty. September 3, 1893. To rejoin station. September 9, 1893.

SPRAGUE, E. K., assistant surgeon. To proceed to Cairo, Ill., for temporary duty. August 26, 1893.

APPOINTMENTS.

WILLIAM STURGIS BIGELOW, M D., of Boston, has been appointed by Governor Russell, a trustee of the Massachusetts General Hospital, as a successor to the late Frederick L. Ames.

W. R. STOKES, M.D., has been appointed assistant to the Pathologist at the Boston City Hospital.

RESIGNATIONS.

G. H. TILDEN, M.D., has resigned the position of Physician for Diseases of the Skin to Out-Patients, and C. R. BURR. M.D., that of Assistant to the Physician for Diseases of the Nervous System at the Boston City Hospital.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday, October 9, 1893, at 8 o'clock, P. M.

Dr. George Haven: "Some Cases of Laparotomy."

Dr. Joel E. Goldthwait: "The Treatment of Hallux Valgus." Pathological specimens.

JOHN T. BOWEN, M.D., *Secretary.*

RECENT DEATH.

THOMAS FOSTER SHERMAN, M.D., M.M.S.S., died in Boston, September 26th, aged thirty-seven years. He was a physician to the Boston Dispensary and to the Home for Little Wanderers, assistant physician to the Children's Hospital and assistant Instructor in Diseases of Children in the Harvard Medical School.

BOOKS AND PAMPHLETS RECEIVED.

The Era Key to the U. S. P., a Complete List of the Drugs and Preparations of the United States Pharmacopœia, Revision of 1890–3, giving official titles, common names and synonyms of the drugs, chemicals and preparations of the Pharmacopœia, with doses in apothecaries weights and measures with equivalents in metric terms. Compiled by the Pharmaceutical Era. Detroit, Mich.: D. O. Haynes & Co. 1893.

The Theory and Practice of Medicine Prepared for Students and Practitioners. By James T. Whittaker, M D., LL.D., Professor of the Theory and Practice of Medicine in the Medical College of Ohio; Lecturer on Clinical Medicine at the Good Samaritan Hospital; Fellow of the College of Physicians of Philadelphia; Member of the Association of American Physicians, of the American Academy of Medicine and of the American Medical Association. With a chromo-lithographic plate and three hundred engravings. New York: William Wood & Co.

A Dictionary of Medical Science; Containing a full explanation of the various subjects and terms of Anatomy, Physiology, Medical Chemistry, Pharmacy, Pharmacology, Therapeutics, Medicine, Hygiene, Dietetics, Pathology, Surgery, Bacteriology, Ophthalmology, Otology, Laryngology, Dermatology, Gynecology, Obstetrics, Pediatrics, Medical Jurisprudence and Dentistry, etc. By Robley Dunglison, M.D., LL.D., late Professor of Institutes of Medicine in the Jefferson Medical College of Philadelphia. Edited by Richard J. Dunglison, A.M., M.D. New (twenty-first) edition, thoroughly revised, greatly enlarged and improved, with the pronounciation, accentuation and derivation of the terms. In one magnificent imperial octavo volume of 1181 pages. Philadelphia: Lea Brothers & Co. 1893.

Lectures.

LECTURES ON SURGERY.[1]

BY DAVID W. CHEEVER, M.D.,
Professor of Surgery in Harvard University.

XVII.

FOREIGN SUBSTANCES IN THE THROAT.

Where do they go? Most likely to go into the alimentary canal. Occasionally they pass into the trachea. What different symptoms do they produce according to where they happen to lodge? In other words, what is the differentiated diagnosis between a suspicion of a foreign substance in the œsophagus or in the trachea?

If in the œsophagus, we naturally have great difficulty and reluctance in swallowing. Moreover, there is rapid increase in the secretion of all the fluids which assist in mastication and digestion in the mouth — great flow of saliva and mucus, that is quite common. These effects are not produced if the foreign substance has gone into the air-passages. If in the air-passages, there is no difficulty in swallowing. There is not an increase in salivation. If the foreign substance is in the œsophagus, it catches on one side or the other. The patient always inclines the head sideways and forwards to relieve the tension of the œsophagus; so that the characteristic position is a little like that of wry neck, where a foreign substance is in the œsophagus. Stabbing pain on swallowing, reluctance to swallow, soon followed by inability to swallow; if inability to swallow, the saliva constantly druling — that comes next in the stage. Soon after that, œdema of the throat, outside, under the skin; noticeable swelling and puffiness around the site of the foreign body. Peculiar position of carrying the head, salivation, inability to swallow and œdema — these seem to be the most marked symptoms when a foreign substance is in the œsophagus.

Now, on the other hand, if it has gone into the trachea, at first it produces intense symptoms of spasmodic croup. The foreign substance rides up and down beneath the vocal cords with each inspiration and expiration, strikes against the bottom of the glottis; produces irritation, spasmodic closure; and hence we have all the phenomena of spasmodic croup. The child appears to be suffocating. That passes off in a little while. The foreign substance drops to the bifurcation of the trachea, usually, and rests there; and beyond a sibilant, uneasy sort of breathing, there is not much indication of its presence. The characteristic position of the patient is rather upright and backwards, as they hold the head in croup, so as to lengthen the trachea, and give the best access of air. If there is any characteristic position, it is rather with the neck extended. There is no difficulty in swallowing; no salivation. If the foreign body remains, speedily bronchial secretion is excited, and necessity to expectorate comes on. That requires cough. Cough dislodges the foreign substance, drives it up and down against the vocal cords. There is then a repetition of the paroxysm of croup, which subsides again. I was once called to a case where a foreign substance was really the cause of the trouble, but the child was supposed to have the laryngeal stridor of spasmodic croup and nothing else, for several days and nights. Next positive bronchitis comes on; sometimes broncho-pneumonia. The child grows quite sick; goes through an attack of slight pulmonary inflammation, and then there is left chronic bronchitis, with frequent attacks of cough; every attack of cough bringing on an attack of spasm of the glottis. We have, then, if a foreign body has been some time in the trachea, the symptoms of chronic bronchitis added to those of spasm of the glottis; and the whole phenomena are somewhat like those of whooping cough, for which they may be mistaken unless a careful observation is made. Fortunately, the child, if old enough, almost always says that it has swallowed something; or if not old enough, the majority of them are watched and seen to swallow something.

Once in a while one sees a case where the symptoms are mixed, and where it was hard to say where the foreign body has lodged. Subsequently, however, after operating and extracting the foreign body its position explains why its phenomena were so varied. When the foreign substance happens to get caught in the gullet, just behind the arytenoid cartilages, it provokes the fibres of the pneumogastric, and brings on spasmodic symptoms and difficulty of breathing; but it very rarely catches there. If you see a bi-vertical section made of the head and alimentary canal, you will find that the pharynx is a funnel-shaped cavity tapering to a point near the œsophagus. This point is just behind the cricoid cartilages; and at this point the constrictor fibres cease and the circular fibres begin. At this point there is a sort of purse-like constriction; and that forms a little ledge; and it is on that ledge that the foreign substance, if swallowed into the alimentary canal, almost inevitably catches; consequently, if the foreign substance has got into the throat, passes beyond the voluntary control of the palatine arches and cannot pass down, in nine cases out of ten it will lodge on this little ledge, just opposite the cricoid cartilage, and preferably on the left side, because the œsophagus inclines to the left in its passage down into the thorax. In this particular case I spoke of, the foreign substance did not go so far; and irritating the back of the larynx and arytenoid cartilages produced the symptoms of difficulty of swallowing and difficulty of breathing; but ordinarily the substance that is lodged at the commencement of the œsophagus produces only the symptom of difficulty of swallowing.

There is another class of cases in which not only difficulty of breathing is produced by a foreign body in the air-passages or in the œsophagus, but even suffocation and death. Such is the case in which a bolus of soft food is swallowed hastily, drops through the pharynx, lodges on this ledge, and there is too big to pass, and necessarily compresses the back of the trachea. The back of the trachea is devoid of cartilage. It is quite conceivable that a foreign body may compress there and produce death by suffocation. This is the ordinary way in which deaths are occasionally reported as occurring while the patient is eating. The patient is eating carelessly some large mouthful of soft substance; jumps up; throws up the hands; falls to the floor; turns blue; ceases to breathe, and dies. It is due to a bolus lodged, not in the trachea, but in the œsophagus, and pressing in on the back of the trachea. If assistance can be efficiently rendered at the moment,

[1] These are unwritten lectures printed from the stenographer's reports. Verbal corrections are made in revision, but no rhetorical changes. They were delivered to the third and fourth classes as part of the regular course.

and a probang were at hand, so that the substance could be pushed down a little further, it would drop lower down into the œsophagus, and the patient would be saved.

The cases where foreign substances are inhaled, so to speak, into the air-passages, and are large enough to produce death by suffocation must be excessively rare, if they exist. In proof of that is the fact that so many foreign substances have been extracted from the trachea which have not caused death at the time of their first being drawn in; notably coins as large as the English sovereign, copper pieces and silver pieces have been carried into the trachea, producing spasm, but not immediate death.

So much for the essentials of diagnosis.

Now, in order to complete this part of the subject, we will follow up a substance supposed to have gone into the œsophagus, before taking the other class which have gone into the trachea. Most of them go down. A few of them lodge temporarily; and then after a few efforts, by swallowing a bolus of bread or drinking a draught of water, are swallowed.

Still another class are vomited up. The patient passes the finger down the throat and the tickling produces nausea, regurgitant action of the œsophagus comes on. The foreign substance is thrown up with the vomitus and the patient relieved. A considerable percentage of substances swallowed never get as far as the back of the cricoid cartilage, but lodge in the pharynx. Those are generally extracted through the mouth; many of them by the finger of the surgeon or physician when he arrives. The best way is to put a wedge between the teeth: put the finger in as far as possible to sweep around; and in very many cases bones, or fragments of meat containing bones in them, foreign substances like pins, hair-pins, shawl-pins put in the mouth by children, are readily detected, if they have not gone far beyond the palatine arch; and can generally be brought out by the finger, or reached by the finger, and extracted by the other hand with forceps. A large class of substances go into the œsophagus, lodge temporarily, but pass down and disappear from view; yet they give the patient the sensation and the belief that they are still in the œsophagus. That is the hysterical class of cases. They are more numerous, I think, than the real class of cases. Such a patient will come in and say he is quite sure he has a bone in the throat; that he got it in two to four days before, perhaps; and he is quite sure it is still there. You are quite sure that it is not there by the mildness of the symptoms; for no human being can tolerate a sharp substance in the œsophagus three days without producing intense local and constitutional symptoms. In such cases as these it is better, usually, to pass the bristle probang down gently, and then withdraw it. You find nothing. The moral effect is marked; and it needs only the effort of faith on their part to get them well.

Foreign substances which really lodge at the top of the œsophagus and do not become dislodged either upwards or downwards are then not very numerous; and when they are there they produce such a marked series of phenomena that there can be no mistake as to their presence. If then the patient with a history of having swallowed something he thinks has not passed, after two or three days presents the characteristic attitude, total inability to swallow, druling of saliva and especially commencing œdema of the neck, we feel that something must be done, at once, to relieve him.

Let us consider for a moment what takes place if they are not relieved. Numerous clinical histories have been collected, and quite a large series of experiments made on dogs, by inserting foreign substances into the throat and leaving them. These experiments have shown that the foreign substance which remains beyond the third day almost always, if it remains unmoved, provokes abscess and eventual perforation of the wall of the œsophagus, and the various consequences that may follow; and a periœsophageal abscess may be behind the œsophagus, may be at the sides, may be in front. You will remember from the arrangement of the cervical fascia and the looseness of the tissues on which the pharynx, larynx and trachea glide in the action of swallowing, that there is really no barrier stretched across between the mediastina and the spaces of the neck; and if an abscess forms, there is nothing to prevent its gravitating down into the thorax and eventually penetrating the pleura; sometimes perforating the large vessels, and leading to death from hæmorrhage; frequently penetrating the air-passages and causing death by suffocation; and, in some rare cases, where the patient lives long enough, and the abscess forms behind the œsophagus, leading to denudation of the tissues over the bodies of the vertebræ, and positive caries of the spine itself. Usually, however, where the foreign substance remains long enough to provoke abscess, the case goes on to a fatal termination in the course of a week, or ten days; and autopsies have proved that such is the usual result, and such the destination of the foreign bodies. A foreign substance left in, means abscess; sometimes coming on in three or four days; and death taking place in one or two weeks, in the majority of patients.

What then shall be done? Extraction through the natural passages, through the mouth, is of course the first and most natural idea which would occur to one, and it has often been practised with entire success. Loops, snares, forceps and various devices are used to slip down into the œsophagus and to catch the foreign body and bring it up. The snares and nets have often brought up coin; the loops and forceps have often brought up substances like bone or pins. Great care and gentleness of course have to be used in manipulating and in extracting; for otherwise we shall push the edge or point of the foreign substance, if it happens to be sharp, through the walls of the œsophagus, and make that perforation which we dread. It is quite possible, also, to make a retropharyngeal abscess and perforation by the rough use of even a simple probang. So that in that class of substances which we judge it is safe to push down into the stomach, where there is a bolus of soft food or some vegetable substance, something not sharp and hard, or even a coin, such substances as that, we may push down by a probang with a sponge on the end; but we must use care and gentleness especially in that point behind the arytenoid cartilages where the pharynx first enters the œsophagus and lies like the finger of a glove; we must be especially careful there, or we may perforate the back of the alimentary canal, and lead to the retropharyngeal abscess, which would not have been caused by the foreign substance. One or two instances of death have occurred in that way. Pushing down or extracting through the natural passages is to be attempted, if the substance has not been there too long; but if the sub-

stance has lodged there as long as the third day, and œdema of the throat and threatening abscess is already imminent; it is questionable whether other methods had not better be used.

A few years ago there was revived and brought back from India an instrument which has been of the greatest assistance in extracting foreign bodies, called the bristle probang; it has a little collar of bristles attached to an ordinary probang sliding in an elastic catheter; when you pull out the probang, it forms a circle of bristles, and sweeps the œsophagus, and frequently brings out the foreign substance. Care must be taken to see that the bristles are all perfect; that their rounded ends are turned in. All parts of the instrument must be thoroughly examined and felt, at first, for fear that something may break off in the œsophagus in the struggle of the patient, while withdrawing the instrument. It is passed down gently until you are sure that it is near the cardiac orifice of the stomach; then unfold the little bristles, and withdraw slowly and gradually; and in very many cases the foreign substance is brought out entangled in the bristles. Blood almost always follows, whether the foreign substance is brought up or not. There is a little scraping of the mucous membrane which makes it bleed. The patient is sore for a few days afterwards, whether a foreign substance is there or not; but that soreness soon passes off. Carefully used it is a harmless instrument; and it is so reliable, that it has probably diminished the chances of any one doing an operation for a foreign body in the œsophagus, very much.

A substance may go into the throat of such a nature that you do not dare to push it down; and having been there so long that there is œdema and fever and other evidences of commencing infiltration, you do not feel it is safe to manipulate; what is left to do in order to save the patient's life? Obviously to try to remove it by external incision in the neck. This course would seem to be so plain, that it is quite surprising that although it was done early in the eighteenth century, it fell totally into disuse, and it was not until about 1842 or 1843 that it was revived again; and then with timidity; and not until about 1868, that it was done with frequency.

Up to 1868 I could collect only twenty cases; but at the present time I can find one hundred and fifty-nine; so that in the last twenty years one hundred and thirty operations have been done; and previous to the last twenty years, twenty operations had been done. This shows the immense progress the operation of œsophagotomy has made since it was found that it could be done safely. What was the bugbear in the way? People were doing quite as dangerous operations about the throat long ago. The older surgeons back to the time of Velpeau and the elder Dr. Warren did the most terrible operations with safety, and without ether. The reason was the belief that, if the œsophagus was opened, it would never heal; and that a fistula would be established which would forever render the life of the patient miserable; that fluids of all kinds would be constantly regurgitating through the wound in the throat, that an œsophageal fistula would be a permanent thing; and that, if the œsophagus was opened by the passage of nutriment and the movements of deglutition, healing would never be brought about. It was then the fear of a fistula, more than anything else, that interfered with the progress of the operation. Now, however, we know that that fear is groundless; and experience has demonstrated that wounds there will heal, and without sewing also; will fall together and heal by granulation, without sewing, perhaps faster than when they are sewed up; and a good many operators, of whom I am one, prefer to do the operation without sewing; and it heals exactly as well. So, also, in a number of cases in which I have opened the pharynx and made large openings into the throat about the region of the tonsils, the back of the pharynx and the arches of the palate, for various purposes, in no case has there remained a fistula; in no case have they been sewed up; and in many cases there has been no leak of food from the first moment after the operation was done; the action of the muscles of the pharynx closing the orifice. In the œsophageal cases I have had healing take place, always, in about two or three weeks, and never longer than four weeks. You need not imagine if you happen to incise to remove a foreign body that you will not have a temporary fistula, for you will. If you open the passage as low down as this, the first efforts at deglutition will be followed by the spouting out of large quantities of fluid through the opening. Gradually, as the patient goes on day after day, the quantity grows less and less; and from being a stream it becomes drops, and presently ceases altogether.

The fear of a fistula being dismissed, there is really nothing which should render the operation for extraction of foreign substances through the œsophagus any more difficult or dangerous than the ordinary operations of surgery. I say any more dangerous, with good proof, because in the cases I collected myself, a good while ago, the mortality of operated cases was just about 25 per cent.; and in the table which I have just taken from Dr. Ashurst, where there are 159 cases, there are 24 deaths, or scarcely one-sixth; so that it may be safely said that in the cases of foreign substances, where it is necessary to operate, three-fourths get well, and one-fourth, at the most, die. On the other hand, if let alone, it is almost sure that 100 per cent. will perish. Moreover in the twenty cases I collected it is instructive to know, that the four or five which terminated fatally after operation, had been deferred until abscess had already formed, and secondary absorptions, as proved by the autopsies, had taken place. As in the case of strangulated hernia, after fair attempts have been made to remove the foreign body by the natural passages, the sooner such an operation is done the safer for the patient; and the quicker the healing.

The operation is done by an incision similar to that for tying the carotid artery; and the sheath of the vessels is found but not opened; the edge of the sterno-mastoid, of course, is found, and then the vessels in their sheath; with the pneumogastric; — the sterno-mastoid is drawn outward and the larynx, myolohyoid muscle, and the long muscles attached to the larynx are drawn inwards; and gradually we pick our way down to the œsophagus. There is a place left by nature, near the cricoid cartilage, through which we may pick our way down until we may go to the pre-vertebral fascia, if we wish. The superior and inferior thyroid arteries and superior laryngeal nerve, and the recurrent or inferior laryngeal nerve, are the things to be looked out for. The first three are easy to look out for; the other is not. It is important not to wound the recurrent laryngeal nerve. It controls the sensibility of the larynx; and any impairment of its fibres

is a certain injury to the vocal cords. If we avoid that wall of the œsophagus which lies near the trachea, we shall not wound the nerve; hence the incision should be made on the postero-lateral part of the œsophagus; that is, on the side and towards the rear of the œsophagus, and towards the vertebral column. It is very easy to get down there; then you put in the finger and see if you feel any foreign substance through the walls of the œsophagus. Usually you cannot. Then you find the only difficulty of the operation, and that is to open the œsophagus. The œsophagus is like the collapsed finger of a glove; lies in between the trachea and the vertebral column; nothing to stretch it. You are forced to introduce something as a guide. You pass a long catheter or stomach-tube into the mouth; into the pharynx and down past the point of incision. That brings the œsophagus up into view. You can then cut upon the posterior surface, upon the catheter, and make an opening, and then withdraw the catheter and enlarge the opening at your pleasure, and hold the sides open, and search for the foreign body. Sometimes it is opposite; sometimes below; sometimes above. It is extracted. There is no hæmorrhage. That is all, I think. There is nothing more to do, except that I should advise that the patient have absolutely nothing to eat for twenty-four hours; not a drop of any liquid or food. Thirst may be allayed by watery enemata thrown into the rectum; by allowing the patient to bathe his face and hands and wrists, which is a great comfort when feverish; and nothing should be given for the first twenty-four hours. Subsequently to that I have been in the habit of letting the patient swallow such liquids as were simple and homogenous; first water and then milk; or, if they wish it, strained beef-tea or broth. Iced milk is very grateful to the patient. The patient will sit up in bed and drink with perfect freedom and ease; get about one-third of the milk into the stomach, and the rest will pour out through the wound in a perfect jet. Why not give the nutriment the first twenty-four hours? To give the parts time to glue together a little, so that the fluids may not trickle down between the layers of the tissues and give rise to deep cervical abscess. Why not feed the patient with the stomach-tube instead of allowing anything to pass out through the wound? You may do so, if you wish. I have not thought it necessary. You must be aware, if you are going to feed the patient with the stomach-tube, that the tube has got to be passed below the level of the wound. Now this requires the stomach-tube to be passed a good ways. It requires you to steer it by the edges of the wound without irritating or making the parts bleed; and that has to be done three or four times in the twenty-four hours. I think this would interfere with the healing of the wound more than letting it alone. Some operators do one way, and some the other.

The essential thing is to make the diagnosis; do not wait too long. Get down to the œsophagus; stretch it, and cut in on the posterior side; extract the foreign substance; and, if the case has not been suffering too long, it will recover, almost certainly; at any rate, in three-fourths of the cases. The tolerance of nature in healing these cases is very remarkable. That was well instanced in a case of mine, which I always mention because it was very remarkable. The patient was a very stupid, drunken fellow, who, the first time, got a pin in the throat, and I did the operation; opened the œsophagus; removed the pin; kept him in the hospital three or four weeks, until he ceased to discharge any fluid through the sinus; and until the cut was a mere little line of granulations, almost healed; then I let him go home. He promptly improved the opportunity to get drunk again; and then tried to eat some rough meat with bones in it; and got a piece of it in his œsophagus, but coughed it out. It did not lodge there and he did not require any other operation. By this occurrence he burst open the whole wound and came into the hospital with a fistula thoroughly established. It looked discouraging with regard to healing; but after a month or six weeks it closed entirely. That shows the power of healing, contrary to the old idea that it was not safe to touch these cases at all.

FOREIGN BODIES IN THE AIR-PASSAGES.

The symptoms I have already described. They may be retained there a long while without killing the patient; many weeks; sometimes several months. Some substances, which are apparently innocuous when they are drawn into the trachea, afterwards change in a way to destroy life. It is very curiously the case with the vegetables like beans and peas. Beans and peas are favorite playthings with little children. They are apt to get them into the nose, or mouth; and if the child has a bean in his mouth and suddenly his attention is distracted, or it laughs or cries, and opens the mouth and inhales, the bean slips down past the guard of the epiglottis, and gets into the trachea, and lodges at the crossing of the bronchi; there produces the usual phenomena, but is not enough to obstruct respiration; but after twenty-four hours it excites secretion, swells, and leads to death from pneumonia, or atelectasis of the lung. Bear in mind that foreign substances always obey the law of gravity; and that any substance which has a large end and a small end will go down large end first. This is especially true of shawl-pins. The shawl-pin is an even pin all the length, with a wax or glass head. When coughed up and down the point is constantly cutting and pricking against the bottom of the larynx. Such a pin I removed from the trachea of a child after it had been in six weeks. This child had suffered a good deal from chronic bronchitis.

The symptoms are marked. What is the relief? The old remedy was to hold the child up by its legs, and to pound on its back, — occasionally, effectually. It was dangerous, however. The child is held upside-down, screams and cries, the substance drops on the glottis, spasm of the vocal cords is produced. Either it relaxes and the foreign substance comes out, or the child chokes to death in a very short time. The better way probably is not to attempt such a thing as that unless the means for doing tracheotomy are already at hand.

Opening the trachea is the only way to get at the foreign substance; and in this condition of things the child, not being in a state of profound dyspnœa except occasionally, it is perfectly proper and easy to give an anæsthetic — chloroform or ether. The child narcotized; the trachea opened in the usual manner; the sides are held open with hooks, and efforts made to find the foreign body. The foreign substance is sometimes thrown out in the gush of air that follows the opening of the trachea; and the substance occasionally is lost. If it is not expelled, it comes up into sight and disappears again. This cannot be the case with a substance which is impacted. Take a bean which has swelled. Symptoms would persist; no foreign substance would

be seen. Nothing would appear. Then we should search the trachea with delicate curved forceps; and we can generally make out whether the two halves of the bronchi are clear or not. This failing, the next resource is to leave the trachea open; but not to put in a trachea-tube which would interfere with the expulsion of the foreign substance. The trachea must be fastened open; say, put a stitch opposite on each side, with two elastics attached, and fasten about the neck of the child; and carefully watch in order that nothing bad takes place; because you will remember that the child can breathe with its trachea held open in that way perfectly well as long as it keeps the head straight and lies on the back; but when it turns on the side everything shuts; therefore it has always seemed to me not so philosophical to do tracheotomy, and have the child treated without a tube, as it is to put in the trachea-tube. Excessive care in nursing must be had afterwards to prevent the child from turning the neck to one side, and suffocating. For these foreign substances you may sew the trachea open, and have the child watched, day and night. Many cases have occurred in which the foreign substance has been expelled during the first few hours after this has been done. Finally the foreign substance has been found lying on the pillow, where it had been expelled. After this, what? It may be safer perhaps to leave the cut in the trachea open, or perhaps put in a tube, for a day or two, until any chance of œdema of the glottis has gone by; and then the wound is allowed to granulate and heal, which it always does with readiness.

The operation of tracheotomy itself. There is no need to describe it. You see it done. You probably will all have an opportunity to practise it, sooner or later. The important question is what are the symptoms in the patient; no matter what the disease is, what are the symptoms in the patient which make you think now is the time to do it? We all know it is safer to do it early than late; that prolonged difficulty of inspiration and expiration; prolonged croup; prolonged spasm of the glottis, lead to changes in the air cells of the lung which render the child less liable to recovery after tracheotomy is done, if done late, than it would be if done early. The air cells get distended and stretched, precisely as they do in the case of the man who is constantly blowing upon wind instruments; who fills his chest and lets the air out slowly through the holes of the wind instrument to produce certain notes. It is well known that pulmonary emphysema and dilatation of the air cells is a common affection in a person who spends his life in blowing the flute, or clarionet, or cornet. A similar condition seems to be produced, rapidly, in the delicate air cells of the young child, after they have been having this forced retention of air in the chest from imperfect respiration through the chink in the vocal cords; hence the importance of doing tracheotomy in membranous croup, or diphtheria, early, rather than late.

Now there are certain symptoms of what we call dyspnœa, or difficult breathing, that come on, that are very significant. I would not call your attention to those which are so marked that any one who looks at the child would say "it is suffocating and near its death," when its nails have become lead color; when the complexion is slate-colored and blue; when the respirations are sighing and irregular and very imperperfect; and when the child is in a state of stupor from carbonization of the blood; — any body could recognize that condition, and, generally, then it is too late to do any good at all. The symptoms which are significant are these, — great pallor; pasty look of the face; constant restlessness; extension of the head and neck backwards to lengthen the trachea; croupy breathing, of course; retraction in the space over the top of the lungs, behind the collar bone; still more marked retraction at the epigastrium. Uncover such a child gently, and see and watch his breathing. You will find the intercostal spaces drawn in at every attempt to inspire; the thorax thrown out with immense force; retraction then of the abdominal muscles; retraction of the supraclavicular spaces; throwing back of the head; restlessness; pallor; a croupy sound, are the most prominent signs. When this class of symptoms are persistent, after a little watching, if you look carefully at the history of the case and find that they have been developing slowly a few days; that the voice has gradually become indistinct; that membrane may or may not have been seen on the tonsils; that all the symptoms point to a permanent obstruction in the larynx from some cause; — then is the time to do tracheotomy, or intubation, if you prefer that method of operating.

PULMONARY TUBERCULOSIS WITH ESPECIAL REFERENCE TO ITS PROPHYLAXIS, HYGIENIC AND CLIMATIC TREATMENT.[1]

BY EDWARD O. OTIS, M.D., BOSTON.

"A sick man helped by thee, shall make thee strong." — *Browning.*

(Concluded from No. 14, page 340.)

Exercise. — We are all agreed, I suppose, that tuberculous patients with much fever or who suffer from hæmoptysis should be kept at rest. With these exceptions, however, more or less exercise is to be advised for all cases of phthisis and will naturally come with the out-door life. The variety will depend largely upon the taste of the patient; and the amount, which must be carefully determined, upon the stage and type of the disease and the strength. If one is dependent upon his own exertions for his support there are many light forms of out-door work; or if, of necessity, he must spend a part of the day at work in-doors, he may utilize the intervals in a variety of out-door sports or exercises. If he is strong enough he may ride horseback, or a bicycle, or hunt picturesque bits of scenery with his camera, or fish or shoot. In the winter, skating, snow-shoeing or tobogganing may be the form of exercise. To have the mind pleasantly occupied at the same time is of decided advantage, and fortunate the man who has a hobby in the form of some out-of-door sport. While spending the summer at Estes Park, Col., some years ago, there was a poor fellow there, I remember, with advanced pulmonary disease, whose distressing cough often kept the ranch awake at night. In spite, however, of his miserable condition, he would persist in his favorite amusement of trout fishing whenever he was able to drag his emaciated form to the streams. When I left the park, I expected that a few weeks would be the end of him; but what was my surprise to learn that he was still fishing there the following summer. Out-door life in a mountain climate, exercise, and a mind pleasantly occupied, were evidently the factors in prolonging a not altogether unhappy existence against such heavy odds.

[1] An Oration delivered before the New Hampshire Medical Society, June 20, 1893.

Whatever the form of exercise one thing must be insisted upon, namely: deep, full respiration and chest expansion. I have dwelt upon the importance of this as a prophylaxis of pulmonary tuberculosis; absolutely necessary is it in the treatment of the actual disease; and I believe it is one, if not the most effective factor in producing an arrest of the disease. Nature does this in the high altitude climate, which is, perhaps, the most important effect of altitude in climatic resorts. The rarified air of these regions stimulates one to take fuller and deeper respirations in order to obtain the requisite amount of oxygen, thus inducing greater chest expansion and more complete ventilation of the lungs. During the construction of the Oroya Railroad in the Andes of Peru, at an altitude of 15,640 feet,[12] some measurements were made of the native Peruvians employed at Yauliyacu with the following results:

Age.	Height.	Chest.
14 years	4 ft. 10 in.	36 in.
24 years	5 6½	36
21 years	5 4	36
16 years	5 0	34½
30 years	5 4½	34½

You notice the enormous chest circumference for the height. An American engineer increased the measurements of his chest four inches in two years by exposure to the rarefied air in these Andes. "The only explanation I can offer as to the nature of the influence of altitude," says an author quoted by Evans,[13] "and one to which I shall hold until something more satisfactory presents itself, is that people who have been born and brought up at great elevations have been always under the necessity of making frequent (or perhaps deep) inspirations, as a consequence of breathing a rarefied atmosphere: that they are continually practising a kind of pulmonary gymnastics, from which there proceeds a vigorous development of the breathing organs, and a greater power of resistance on their part to noxious influences from without."

There has recently been published an exceedingly interesting little book, written by an intelligent layman, narrating his experience in fighting pulmonary tuberculosis in his own person.[14] He attributes his cure largely to the habitual use of an inhaling tube. "To this instrument," he says, "I owe more than to all medicine, or to out-door exercise; and were I compelled to choose between the use of the tube for an hour and a half a day, and all other exercises and medicine without, for the removal of pulmonary tuberculosis, experience and observation would lead me to prefer the tube." If you will consider a moment the action of this little machine, you will observe that it is nothing more or less than a simple method of producing deep breathing and chest expansion, which is just what I have been contending for, and the extreme importance of which I have been trying to impress upon you. "To the use of the tube," continues Dr. Buckley, "the amount of time spent in walking and riding in the open air, and observance of certain additional hygienic methods together with the determination not to die, I owe my recovery." Merely to tell a patient to practice deep breathing is not sufficient. As a rule, he does not know how to do so, and often his respiratory muscles, especially the intercostals, are so weak that he cannot do it. Time and persistence and careful instruction will be required to accomplish this. In the beginning one should note, by measurement, the degree of chest expansion as well as the lung capacity, and these will serve as a basis of comparison with subsequent measurements, and indicate the effectiveness of the breathing exercise. I have already suggested the simple methods of accomplishing chest expansion; either with the arms at rest and the hands on the hip, or by an upward movement of the outstretched arms; slow, full inspirations are to be taken; or one may use the inhaling-tube, which is a useful device for accomplishing the same thing. If one has access to a well-appointed gymnasium, the different forms of lung-expanding apparatus can be used. It is hardly necessary for me to add that gentleness and moderation must govern the beginning, and the quantity of exercise should be adapted wisely to the patient's strength.

Habitation. — As pulmonary tuberculosis is a disease of in-door life, as little of this life should be lived as possible; all crowded halls and rooms, churches, closed vehicles of all kinds, street and steam cars should be avoided whenever possible. In the city, when one is obliged to ride upon a closed street-car, it is far safer to remain outside, even in cold weather than to undergo the risks of the generally impure air inside. The eloquent plea that the secretary of this society has recently made for better ventilation in railroad cars, and to which I call your attention with great pleasure, I trust will produce its results.[15] The church prayer-meeting, I am sorry to say, is often unmindful of the fact that holiness is more beautiful when given expression in a pure atmosphere. A country church in winter, and an unventilated vestry heated by a tight stove are prolific breeders of pulmonary tuberculosis; keep your patient out of them. When he is obliged to be in-doors, his room should be large and sunny and with but little furniture and that of the simplest kind. It should have painted floors that can frequently and easily be washed, and if possible walls without paper, but painted and varnished. Everything should be kept absolutely clean and well-aired. It is better to have a separate room for a bedroom, which should be large, sunny, and well ventilated, and neither gas nor a lamp should be used in it. It is well to bear in mind that an ordinary gas burner or lamp consumes as much oxygen as several adults. Both rooms should have an open fireplace; this must be insisted upon; it is the most ready and effective means of ventilation, and when heat is required, the air in the room can be kept cool and the patient warmed by radiation. Often, at not a large expense, a chimney can be added at the side of the house for the fireplaces, as is so frequently seen in the South. A large Franklin stove fulfils the purpose very satisfactorily. A damp cloth should be used for cleaning the furniture and the floor, instead of dusting and sweeping. The temperature of the rooms ought not to be above 65° F., or at the most 70° F.

Consider the condition of things in the average country house during the colder months of the year? The air is impure and stagnant; there is no ventilation; the temperature is perhaps 75 or 80, and the source of heat a tight stove. No daily thorough airing-out is ever thought of. Injurious enough to the most robust is this wretched atmosphere. What must be its effect upon the phthisical patient whom you so often find breathing it?

[12] A. N. Bell: Climatology, New York, 1885.
[13] Evans: Phthisiology, New York, 1888.
[14] J. H. Buckley, LL.D.: A Hereditary Consumptive's Successful Battle for Life, New York, 1892.
[15] G. P. Conn, M.D.: Costs and Compensations, a paper read before the National Association of Railroad Surgeons, Concord, N. H.

If the situation of the residence can be chosen, a dry, sandy soil should be selected — not a clayey one. Sometimes, if the patient is living in a damp place, he may have some friend or relative who is more favorably situated, and who will receive him into his house.

The drainage and purity of the water should also be investigated. Wherever the abode, let it have an abundance of fresh air, keep the windows open whenever the weather will allow. It is said to be the habit of the present Chief Justice of this State to remove every window from his residence at the advent of mild weather, and not to replace them until compelled to do so by the approach of colder weather in the autumn; an example well worthy imitating with our phthisical patients. Impress upon them the dangers of in-door life; it is for those of strong lungs — if for anybody — not for the weak chested. I remember an Irishman who came to my clinic with some kind of a bronchial trouble, and who asked me how much longer he should stay in the house. "In the house," I replied; "we should all be better if there were no houses." "Begorra, I think you are right, doctor," was his reply. At any rate, we must admit that living in houses is accompanied with much risk.

Clothing. — In this climate the phthisical patient should wear woollen underclothing throughout, both winter and summer. Differences in the thickness may be made according to the seasons, but woollen all the time. It matters not so much what the outer clothing is, only do not permit the patient to be too heavily clad, particularly about the chest: Chest-protectors and the various kind of jackets, I believe unnecessary, if not injurious. A daily bath I think essential, the temperature being regulated according to the season. Sea-salt is often a desirable addition to it. In winter it can be taken before the open fire. A word as to the care of the sputa, a most important matter. Under no condition should it be received upon a cloth, handkerchief, or paper, or deposited upon the floor or ground, where it will dry and be disseminated in the air. Experiments have shown that dried tubercular sputum may be kept for periods of from ninety-five to one hundred and twenty days, and yet when innoculated into guinea-pigs may produce tuberculosis. It is a good plan to do as Dr. von Ruck told me he was in the habit of doing at his sanitarium in Asheville; frighten the patient by making him understand that, unless he exercises every precaution in regard to this, he is in danger of reinfection, or of infecting the still healthy lung portions. I generally use the small paper receptacles made for this purpose, with absorbent cotton at the bottom impregnated with some reliable bacillicide, such as a five-per-cent. solution of carbolic acid or a solution of corrosive sublimate (1 to 500 or 600). The cotton is to be renewed every day or several times a day, and the receptacle itself is to be frequently destroyed. We must ever remember "that the sputum of subjects of pulmonary tuberculosis, is of all the excretions the greatest source of danger."[16]

The last subject of which I shall speak is that of climate, and I shall only be able to touch upon some of the salient points of such an extensive subject. Let me begin with a sentence from Osler,[17] which it will be well for us all to bear in mind. "When," he says, "the disease is limited to an apex, in a man of fairly good personal and family history, the chances are that he may fight a good winning battle, if he lives out-of-doors in any climate, whether high, dry and cold, or low, moist and warm." There is much encouragement in this for those of us who have to treat the majority of our phthisical patients at home. Bear in mind also another point, that change, *per se*, is often of great value, and sometimes, on the contrary, destroys the effect of the most favorable climate. I have visited many climatic resorts of pulmonary tuberculosis in this country and in Europe, and am tolerably familiar with the literature of the subject; and from what I have learned my conclusion is that there is no *one ideal* climate for the cure of this disease. Neither could there be, for varying conditions of the individual and the disease require varying conditions of climate. For example, one climate will promote good nutrition in one patient, another in another. There must be an adapability of the climate to the case. "Climatic treatment," says Jaccoud,[18] "is entirely a question of individual adaptation, and the problem is to determine which residence would be most appropriate to the patient in question."

Sometimes it will be necessary to change from one climatic resort to another, according to the changes in the disease or the individual. Furthermore, I do not think we are able yet to say what are the exact essentials of an ideal climate. Certain requirements, however, I think, we are sure of: first, a pure atmosphere; second, weather such that the patient can be out of doors most of the daytime during the whole year; third, as near eternal sunshine as possible. Most important, but possibly not always essential, is a dry soil and sub-soil. Dryness of the air and an equable temperature are also important, but it does not seem to me that they are always essential, especially equability, as it is generally associated with moisture.[19] The temperature of the air is a minor consideration, I think. Of all, *purity* of *air* is the most important point. In considering climate we must always keep in mind that "Climates which benefit consumption are found to fulfil one or both of the following indications: (*a*) The improvement of the local condition: (*b*) the improvement of nutrition and constitution vigor."[20] Increased experience and observation have taught me that a warm climate is not necessarily beneficial or a cold one injurious. Indeed the most successful curative climatic resorts at the present day are those of a cold or moderately cold climate, at least some portion of the year. I have no confidence in the warm and more or less moist climates, as for example, Florida and Havana, as curative. They may be used temporarily as a preliminary training for the higher attitudes, in cases where the vitality is low and one needs to exist with the least exertion; or they may be used as sedative and soothing, where there is no hope of cure. Whatever the climate selected, there are certain conditions which, in my opinion, must be fulfilled by the patient in order to gain the maximum of benefit from it. They are: (*a*) A long continuous residence; he should remain until he is cured, or it is proved that the climate does not agree with him. (*b*) Good sanitary and hygienic surroundings. (*c*) Nutritious well-cooked food. (*d*) An out-door life. (*e*)

[16] Karl von Ruck: The Prophylaxis of Tuberculosis. Reprint from the Therapeutic Gazette, April 15, 1890.
[17] Practice of Medicine, New York, 1892.
[18] Pulmonary Phthisis.
[19] W. H. Geddings, M.D.: Aseptic Climates without Altitude. Reprint, 1889.
[20] Lindsay: Climatic Treatment of Consumption, MacMillan & Co., 1887.

Exercise, unless especial conditions temporarily prevent. (*f*) A comfortable mental condition, and freedom from worry and anxiety. (*g*) To be under the constant supervision of a reliable physician.

I am more and more convinced of the great advantage of well-conducted sanitaria in climatic resorts. In many, if not the majority, of cases far better results are obtained than where the patient is left to himself. Success in the treatment of phthisis depends so much upon constant care in the detail of one's life, and this can be so much more satisfactorily done when constantly under the eye of a skilful physician and with the aid of all the equipment of a sanitarium. Unfortunately, I know of but few good ones in this country.

With these general considerations, I will briefly refer to certain especial climates and the regions where they are found, in which, experience has proved that pulmonary tuberculosis has been most successful treated. First, however, let me remind you that all stages of phthisis are not benefited by the same climate, and some by no climatic change, however favorable. Of course, the incipient cases are the most amenable to any good climate.

The classes of climate which have given the best results are: (1) the high altitude; (2) the medium altitude; (3) dry aseptic climates without altitude; (4) the oceanic climate.

Thus far the best results have been obtained, in my opinion, in the high altitude climates as represented in Europe by the Alpine health resorts, in the region about Davos; and in this country by various places in Colorado, particularly Colorado Springs. Davos is situated in a narrow valley, is of about 5,000 feet elevation, and is admirably equipped for the care of the consumptive. In Colorado an altitude of about 7,000 feet would give us a climate approximating to that of Davos, but superior in the amount of sunshine and clear, pleasant days. Colorado Springs is the best known to you and the best provided with accommodations. I believe, however, that there are many other places in this great State as (or more) favorably situated, if only good accommodations existed. Dr. Ruedi, of Denver, has recently suggested [21] Estes Park, a mountain plateau of great beauty and of about 7,000 feet elevation, as offering excellent climatic conditions for the treatment of phthisis; and I trust his plan of erecting a sanitarium there may soon be accomplished. I can testify to the wonderful charm of the park both in climate and scenery from a summer spent there a few years ago. Manitou and Denver are also resorts for patients. In the great Rocky Mountain zone innumerable high altitude resorts could and will in time doubtless be discovered and developed. I have need only to mention the high altitude resorts of the Andes, such as Santa Fe de Bogota, Quito, Arequipa, etc. They are obviously too far away to be of use to us, and we know but little of the local conditions existing there.

It is generally conceded that cardiac weakness, senile change, a nervous diathesis and pyrexia are contra-indications to the high altitude treatment. Lindsay [22] also includes rheumatism. The characteristics of the high altitude are: great purity of air, dryness of the air and soil, the coolness of the air temperature and the great warmth of the sun temperature, the rarefaction and low pressure of the air, the intensity of the light, the stillness of the air, and the large amount of ozone.[23] The effects of such a climate are: increase of the appetite, promotion of greater expansion and ventilation of the lungs, improvement of nutrition and digestion, and increase of muscular and nervous energy.

The climate of the medium altitudes resembles that of the higher, with the difference due to the less elevation, and the geographical situation. It is represented in Europe by many of the lower Alpine stations; for example, Les Avants (in the neighborhood of Lake Geneva, and 2,000 ft. above it), Gorbesdorf (in Siberia, 1,740 ft.) and Falkenstein (in Germany, 1,500 ft.) might be included in this class, and are famous for the sanitaria of Brehmer and Dettweiller. In this country we have, in the mountains of North Carolina, Asheville, 2,350 ft. high, with the admirable sanitarium of Dr. Karl von Ruck; South Western Texas and Southern California, inland, of an elevation of about 2,000 ft.; New Mexico, somewhat higher; and the Adirondacks, with an elevation varying from 1,500 to 2,000 ft. Near Saranac Village in these mountains is situated the sanitarium known to many of you by the valuable investigations concerning pulmonary tuberculosis, conducted there by Dr. E. Trudeau. Although cold and snowy in winter, yet patients remain there the year through. There are many regions in this State (New Hampshire) of moderate elevation, which, I believe, offer a fairly good climate for the consumptive, particularly in summer; such as Bethlehem, Gilmanton, Dublin, and others which will occur to you. That they are cold in winter is necessarily no objection for a continuous residence; the number of sunny days in winter, however, is somewhat limited and the climate is moderately moist. There is much to be done, it seems to me, in the careful investigations of the climatic resources of this State; only by a series of accurate observations extending over a number of years can any definite and trustworthy results be obtained. The pains-taking paper of the late Dr. Geddings [24] upon Bethlehem and Maplewood is an illustration of the kind of work that ought to be done.

Of the dry, aseptic climates of low elevation, Egypt is perhaps the best illustration abroad; there, on the borders of the desert, the climate is very dry and warm, the sunshine abundant, and the air pure. In this country there are various regions where these conditions exist; portions of Texas and Southern California, and the pine-belt of South Carolina and Georgia. Aiken, in the former State, is perhaps the best known resort, and its meteorology has been carefully studied by Dr. Geddings, whose favorable results in the treatment of phthisis there are doubtless familiar to you. Marietta and Thomasville, in Georgia, are also well known. Lakewood, in New Jersey, has many favorable conditions to recommend it — its dry, porous soil, environment of pine forest, good accommodations and easy accessibility. Minnesota and Canada must also be mentioned. If for various reasons the higher altitudes are inapplicable, we have these resorts of low elevation, which have produced good results. Of the oceanic climate, as illustrated by long sea-voyages, I have little to say, for the obstacles to its use are obviously so great that it can but rarely be employed. Surely one obtains here the purest of air and an equable temperature. Very much the same conditions can be found

[21] Meeting of the American Climatological Association, May 25, 26, 27, 1893, Philadelphia.
[22] Climatic Treatment of Consumption.
[23] Herman Weber: Croonian Lectures on the Hygienic and Climatic Treatment of Chronic Pulmonary Phthisis, London, 1885.
[24] The Climatologist, August, 1891.

upon mid-ocean islands, such as the Madeiras and Canaries. In the latter is situated the valley of Orotava, "which Humboldt thanked God he had lived to behold." "Here the invalid may live in the open air — the air of the ocean." "The temperature never falls below 50° F., nor rises above 82° F., and it rains but forty-five days in the course of the year."[25] Surely a delightful spot in which to enjoy the benefits of an ocean climate!

If I were asked which of these classes of climate I should select for a case of pulmonary tuberculosis of good or fair general condition and not extensive disease, I should unhesitatingly choose first the high altitudes, for, undoubtedly, the best results so far have been obtained there. "A consumptive," says Solly,[26] "treated in an open resort in an elevated climate has three times as good a chance of recovery as has one treated in an open resort in a low climate, and twice as good a chance as one treated in a sanitarium in a low climate." The residence, however, must be a continuous one and perhaps for a life-time. Next, my choice would be Southern California, inland, or if I possessed greater knowledge of the region, perhaps, South-western Texas. Third, I should select Asheville, in North Carolina; and lastly the Adirondacks, or some of the resorts in the pine-belt of South Carolina and Georgia. There is a wealth of sanitaria in this country, with an almost infinite variety of climate, as yet hardly known and not at all developed. It remains for our profession to investigate with pains-taking fidelity these regions, and to make them available for the poor consumptive.

A few years ago in the mellowed light of the afternoon, it was my privilege to visit the great cathedral of Winchester. I was impressed with its majestic size, its grand and beautiful architecture, and its noble tombs to heroes and valiant knights of the Crusades. The atmosphere seemed heavy with the invisible spirits of those who left home and friends and all the richness of their lives to uphold the Cross in a distant land, and be true to the highest ideal of their day. As I wandered about, my attention was attracted by a humble tablet on the wall, erected to the memory of a physician. I have forgotten his name — that matters not — but I have never forgotten the tribute there to his services to suffering mankind. It was this, "The blessing of him that was ready to perish came upon me." What finer or more God-like deed, I thought, could be done by hero or knight, than to rescue those perishing from disease, and restore them to health and usefulness!

Fellows of the New Hampshire Medical Society, you go forth to meet during your next year's practice a thousand or more poor unfortunates ready to perish with the awful scourge of pulmonary tuberculosis. If you shall approach these cases with a greater hopefulness and a more determined spirit to help and cure them, and reduce the frightful yearly mortality, then, likewise upon you will "the blessing of him that was ready to perish" come. And what greater satisfaction can any true physician ask for than this?

A new use has been found for aluminium. It is said that the metal is to be employed in making artificial limbs.

[25] Gihon: The Therapy of Ocean Climate. Transactions of the American Climatological Association, 1889.
[26] Hare: System of Practical Therapeutics, vol. i, p. 433, art. Climate.

Original Articles.

GUN-SHOT WOUNDS OF THE JOINT.[1]

BY HERBERT L. BURRELL, M.D.

Every surgeon knows that in the past there was a frightful mortality attending gun-shot wounds of the joints, and that these injuries usually meant amputation; exceptionally resection. Since the introduction of antiseptics, in the few instances in which its principles have been applied, there has been great improvement in the results, so far as life is concerned. With the introduction of small-bore rifles, which all the European nations (and at last our own government) have adopted, must come a reconsideration of the whole treatment of gun-shot injuries, and especially those of the joints.

I shall divide this paper into headings, and shall make broad statements in order to elicit discussion. It is written at best on insufficient data: hence the conclusions which I draw are advanced with considerable hesitancy. We can begin with this proposition, which will, I believe, be generally accepted, that we shall never know the full effects of the small calibre projectile until a war has taken place, and until such a calamity has occurred we must depend upon experimentation and theoretical reasoning.

The headings will be:

I. The effects of the new .30, jacketed projectile upon joints and individual joints.
II. The "firing-line" treatment of these injuries.
III. The field-hospital treatment.
IV. Complications and prognosis.

Under all these headings I shall consider the differences in the injuries inflicted between the .30 and .45 calibre projectiles.

I. — THE EFFECT OF THE NEW .30 JACKETED PROJECTILE UPON JOINTS.[2]

A most complete series of observations have been made by Capt. Louis A. LaGarde, of the United States Army upon "The Comparative Difference between Certain Wounds Inflicted by the Projectiles of the Large and Small Calibre Weapons." I am under the deepest obligations to Captain LaGarde for the privilege of seeing the specimens of bone injury by these projectiles, and for his permission to make abstracts from his paper, which has not yet been published. It would be more fitting if Captain LaGarde were to write this paper, as the specimens are unique and very valuable.

Our own government has finally adopted the Krag-Jorgensen rifle, and the experimentation of Captain LaGarde was carried out with what is known as the "experimental Springfield rifle of .30 calibre." Its ballistic qualities are quite equal to those of the new Mauser, Leble or Mannlicher rifle. The following is a description of the more important ballistic properties of these weapons as kindly furnished Captain LaGarde by authority of the Chief of Ordnance, United States Army:

"The Springfield rifle which has formed the armament of our foot troops since 1874 is a .45 calibre gun, the projectile of which has an initial velocity of

[1] Read before the Association of Military Surgeons of the United States, Chicago, Ill., August 9, 1893.
[2] When the term, .30 jacketed projectile is used, it is meant to include all the various makes of jacketed lead bullets of .30 calibre, whether covered by steel, nickel or copper.

1,301 f. s. Its projectile is made of compressed lead, cylindro-conoidal, cannelured and lubricated, weighing 500 grains, impressed by 70 grains of black rifle powder.

"The experimental Springfield rifle is a .30 calibre gun, the projectile of which has an initial velocity of 2,000 f. s. Its projectile weighs 220 grains, is made of a German silver jacket filled with a lead core, and it is neither canellured nor lubricated. It is impressed by 36 grains of smokeless powder."

The velocity and energy of the projectiles of the two weapons at different ranges are as follows:

VELOCITY OF THE PROJECTILES OF THE TWO GUNS.

Name and Calibre of Weapon.	Initial Velocity. f. s.	500 yds.	1000 yds.	1500 yds.	2000 yds.
Springfield, Calibre .45 .	1301	873	676	531	429
Experimental Spr'gfield, Calibre .30	2000	1103	804	627	495

ENERGY OF THE PROJECTILES IN FOOT POUNDS.

Name and Calibre of Weapon.	Initial Velocity.	Weight Grains.	Muzzle.	500 yds.	1000 yds.	1500 yds.	2000 yds.
Springfield, Calibre .45.	1301	500	1879	846	507	313	204
Experimental Springfield, Calibre .30,	2000	220	1954	594	315	192	120

It will be seen by the first table that the initial velocity of the small calibre projectile is far greater than that of the large calibre, and that the striking velocity at all the ranges is greater.

The penetration of bullets is proportional to the squares of their striking velocities. For equal velocities the penetration is proportional to the density of section. The form of the bullet and its power to resist deformation are also concerned in the penetration.

Considerable experimentation has been carried out by German and French observers upon the effect of small-calibre jacketed bullets as compared with the soft or hard lead bullets, and all agree in their conclusions. Bruns, Noel, Delorme, Chauvel and Nimier, Rogardik, Thurnwald and Reger are all men who have contributed to our knowledge. It is interesting to note that the calibre of fire-arms as used in European armies, which was formerly 18 mm. has been reduced to 7 and 5 and 8 mm., and in proportion the weight of the bullet has been reduced from 50 grammes to 15. The rapidity of the bullet has been increased from 400 to 600 metres a second. Experiments upon wood, iron, water and earth have been carried out, and it has been found that the force of the penetration exerted has been increased five or six times, but that the concussion of the bullet has been decreased, and that it causes a wound very like a cylinder, whereas the leaden produced a conically-shaped wound, the base of the cone being at the point of exit.

All writers agree upon dividing the effect of bullets into zones. In Zone 1, which extends up to 320 metres, the .30 calibre bullet has decided explosive [3] effects, but less than the .45 calibre.

Zone 2, which extends from 400 to 800 metres. The bullet produces a wound without any explosive effect. It is cylindrical, and not like the conoidal wound of Zone 1. Bones are perforated and splintered, but retain their form. The effect upon the soft parts is perforative and not especially destructive.

In Zone 3, from 800 to 1,200 metres, the wound is cylindrical. The wound of entrance is not larger than the projectile; the exit wound is only larger when bone has been traversed. The bones are perforated, but seldom shattered or splintered.

No particular study has been made of the effect of .30 calibre projectiles upon joints by European observers, but reasoning from the effect produced upon bone and the soft tissues and the increased penetrating power of the bullet, the effect upon joints at the various ranges will at times be complex, but usually less destructive than that of the .45 calibre. In a joint we have various densities of bone; we have a closed cavity filled with synovia, which is a capital culture medium for germs.

There will be a great deal of difference between a wound of the knee-joint and one of the wrist-joint, and it will be of great importance to decide at what range the bullet was fired. It can be readily understood that in a bullet wound of the knee-joint bits of the trousers and underclothing may be carried before the bullet, which may lodge within the joint and act as a foreign body. This would not be probable, for instance, in the elbow-joint or the ankle-joint. These considerations would naturally lead the surgeon to thoroughly explore the joint.

But a striking fact connected with the small-calibre projectiles is that in the mid-ranges their great velocity produces a perforative effect, and that not alone upon one man, but upon two or three. This was the experience in a number of instances in the Chilian War. Stitt, a United States naval surgeon, states that in the St. Augustine Hospital during the Chilian War, of 2,000 wounded, that those wounded with the .30 calibre projectile left the hospital a considerable period of time before some 300 of their fellows who had been wounded by the old projectile of over .40 calibre were convalescent. As an example of the conservatism which will undoubtedly be the rule in the treatment of joint injuries in a future war, Stitt relates two gunshot injuries of the elbow-joint in the San Juan de Dious Hospital; one received from a .45 calibre, the other from a .30 calibre. The injury which resulted from the .45 calibre demanded amputation, whereas that received from the .30 calibre resulted in a moderate synovitis of the joint, which required rest and passive motion a few weeks later.

It is interesting to note that Captain LaGarde's conclusions correspond with those of Continental observers, and he states that "the humane wound of the small bore rifle is especially observed in the joints and soft parts. Owing to the reduction in calibre the wounds in the latter partake more of the nature of subcutaneous wounds, and experience shows that they

[3] The term explosive effects should not be confounded with the action of explosive bullets, but it refers to the action of the bullet upon the tissues with which it comes in contact, especially resistant structures, like bone or tissues, containing much water, like the brain, enclosed in cavities with rigid walls.

LaGarde writes: "When a resistant bone has been hit the foyer of destruction will show great loss of substance; the bone will have been finely comminuted; the pulverized bone will have been driven not only in the direction in which the projectile was travelling, but in all directions, and the pulpification of the soft parts will not only be limited to the track of the bullet, but the utter destruction is noticed some distance into the tissues. The wound of exit appears like a bursting forth of the skin; the track leading to the bone is conical in shape; the base of the cone corresponding to the wound of exit in the skin, and the apex to the seat of fracture. These explosive effects correspond to the velocity of the projectile at the time of impact, and the resistance offered by the part hit."

heal very kindly under appropriate treatment. It is not necessary in this case to dwell upon the destructive effects of the larger leaden projectiles upon joints. Suffice it to say that the greater frontage which it naturally possesses is made greater still by deformation, and that these facts with velocity sufficient to penetrate a joint, serve to convert the .45 calibre projectile into a very destructive missile."

The following cases noted at Frankfort Arsenal will explain the marked difference in destructive effects by the two projectiles upon the spongy ends of bones:

"No. 1. Gun-shot injury of the lower part of the left femur; bullet marked No. 4, calibre .45, impressed by the velocity common at 100 yards, soft parts frozen. The wound of entrance is marked by a V-shaped tear, each side of the V being 2.5 inches in length; the wound of exit is round, 1.5 inches in diameter. It is funnel-shaped, the base of the funnel corresponding to the skin and the apex to the point of destruction in the bone. The soft parts adjacent to the track of the bullet are a pulpified mass mixed with finely pulverized bone. One and a half inches of the external half of the shaft immediately above the articular surface has been carried away; the remaining part of the shaft is separated from the articular surface by a transverse fissure, whilst an oblique fissure extends into the shaft above 2.5 inches in length. The upper and external quadrant of the patella was chipped. There was no fissuring into the joint. The projectile was not recovered.

"No. 2. Gun-shot injury of the lower end of the right femur; bullet marked No. 3, calibre .30, impressed by the velocity common at 100 yards. The soft parts were frozen, on account of which the explosive effects were enormous. The projectile entered the femur just above the epiphyseal junction of the internal condyle and emerged posteriorly in a horizontal line, making an orifice the diameter of the projectile upon entering, and five lines in diameter upon leaving the bone. The perforation is well marked. The track of the bullet in the bone and between the latter and the wound of exit is lined by bony sand. There is a fissure scarcely visible to the naked eye running downwards and from before backwards through the articular surface, separating the two condyles almost equally. There is also a subperiosteal fissure 1.5 inches long running upwards from the point of emergence in the bone; there are a few small splinters of bone near the wound of exit still attached to the periosteum. The projectile was not deformed.

"That we should find a perforation so well marked in the spongy end of a bone within the range of explosive effects, makes the latter case very remarkable. As it is the only recorded instance of a perforation by the small metallic jacketed bullet within the explosive zone, it is but natural to infer that the frozen condition of the soft parts contributed to the result."

The two following injuries illustrate the difference in destructive effects upon the spongy ends of the bones entering into the formation of the knee-joint at 350 yards:

"No. 4. Gun-shot injury of the left tibia and fibula near knee-joint; bullet marked No. 5, calibre .30, impressed by the velocity possessed at 350 yards. The wound of entrance is round, of the diameter of the projectile; the wound of exit is marked by a longitudinal slit measuring one-third of an inch. The projectile entered the anterior portion of the head of the tibia, one-third of an inch from the articular surface, in the middle line; passing obliquely toward the outer side it emerged from the posterior surface of the head of the fibula. The orifice of entrance in the bone is equivalent in diameter to the diameter of the projectile; the orifice of exit is irregular, and one-third of an inch in its greatest diameter. There is no comminution. The knee-joint was not perforated, but the articular surface adjacent to the tuberosity shows a fissure which was not apparent in the recent state. The projectile was lost.

"No. 5. Gun-shot injury of the lower shaft of the right femur, bullet marked No. 3, calibre .45, impressed by the velocity common at 350 yards. The wound of entrance is 1.5 inches above the outer condyle, round, and equals in diameter the diameter of the projectile. The wound of exit is in the upper part of the popliteal space, irregularly quadrilateral in shape, three-quarters of an inch in its greatest diameter. The bullet entered the lower shaft 1.5 inches above the margin of the articular surface, one-third of an inch outside the median line. Nine large splinters are detached measuring from three to five inches in length. There are a number of deep vertical fissures in the upper and lower fragments; those in the latter do not invade the joint. The projectile was very much set up."

Then Captain LaGarde states that "The tendency on the part of the smaller jacketed bullets to perforate the spongy ends of bones increases as the velocity diminishes. After the 500-yards range perforations of these structures are rather the rule than the exception. We made no notes of injury to blood-vessels."

So far as I have been able to ascertain there have been no observations upon the effect of the projectiles upon blood-vessels, and I fancy that this work should be done.

II. — THE "FIRING LINE" TREATMENT OF THESE INJURIES.

The theory of the asepticity of a rifle bullet has been exploded by the experimentation of Messner and LaGarde. Messner's experiments were made by shooting a bullet into a tin can filled with sterilized Koch meat peptone-gelatine. A full charge of powder was exploded. The range was 125 and 250 metres. The conditions were as follows: (1) A non-infected bullet, can sterile. (2) Bullet infected (pure culture), can sterile. (3) Bullet non-infected, can sterile, but covered with a flannel covering which was infected with a known coccus, pure culture.

The results are given thus:

"(1) The shot canal through the gelatine showed no change or more frequently a more or less vigorous growth of "scheinmelpilz" or those varieties more commonly found in the air.

"(2) Without exception did the gelatine contained in the can show the development of the specific germ with which the bullet was infected.

"(3) Here also the shot canal was infected with the same germ with which the flannel covering of the can was infected.

"Although the experiments in the third class are not wholly convincing, still enough data is furnished by the rest of the work to decide the question in the negative."

Perhaps the most conclusive proof was furnished by LaGarde, who fired a .45 calibre bullet through a rabbit's ear and infected it with erysipelas, the bullet

having been infected with the streptolococcus of erysipelas. He also communicated anthrax to three rabbits and one calf by shooting them with projectiles infected with anthrax bacilli. The wounds of entrance and exit in the .30 calibre in the mid and long ranges are slit-like, and have been compared to what would occur from the entrance of a knife. The skin of every subject of the reception of a gun-shot wound is, of course, septic. It is my belief that all that can be done for a patient receiving an injury at the "line of fire" will be:

(1) To check the primary hæmorrhage by means of tourniquets.

(2) To apply an antiseptic dressing (iodoform gauze) or some dry antiseptic. A cartridge shell of .45 calibre might be filled with iodoform and sealed up, and made a part of the permanent equipment of every soldier.

(3) To prevent further injury to the patient during his speedy removal to a field hospital.

To summarize, this means that every soldier should have an antiseptic dressing composed of some dry antiseptic, which will not need water to render it effective; and that he should have a tourniquet bandage, a suspender, that the company bearer may find his patient equipped for emergency treatment. This work will be done almost entirely by company bearers, under the direction of a medical officer. The ambulance corps will be busy in removing the wounded from the "line of fire" to the rear.

III. — THE FIELD OR BASE HOSPITAL TREATMENT.

Necessarily with this new projectile with its increased range of effectiveness field hospitals will have to be far in the rear. At this point a full equipment and a thorough system for immediate, rapid and accurate treatment of all injuries should exist. This will demand a corps of operating surgeons. The first thing to do in every case will be to wash, shave and sterilize the injured part. This will be done while the anæsthetic is being administered. The limb will then be rendered bloodless by an Esmarch bandage, and the surgeon with antiseptic precautions will explore the wound, and determine the amount of injury to the parts. He will take into consideration the character of the injury, the projectile producing it, the range at which it was fired, and the length of time that has elapsed since the injury was received. The best treatment of each case will be largely influenced by these considerations.

A gun-shot wound of the knee-joint from a .30 calibre jacketed projectile in Zone 1, 2 and possibly Zone 3, will require a thorough laying open of the joint, and its complete cleansing of dirt. A gun-shot wound with a .30 calibre in the shoulder-joint in Zone 1 will mean the mechanical cleansing of the entrance and exit wounds, the irrigating out the bullet track, and packing with iodoform gauze. The same injury occurring in Zone 3 may mean simply the washing of the external surface of the part, and excision of the wound of entrance and exit and no interference with the bullet track, but hermetically sealing it with a collodion and cotton (aseptic) or compound tincture of benzoin and iodoform dressing. A gun-shot wound of the hip-joint by a .30 calibre in Zone 1 means a thorough cleansing of the wound to its bottom, if possible, and tamponading it with iodoform gauze.

But I feel sure the rule will be to explore where there is any doubt of the cleanliness of the joint cavity. Plaster-of-Paris will enter largely into the treatment of joint injuries in future campaigns. Fenestra will be cut, and the wound dressed as often as circumstances demand.

IV. — COMPLICATIONS AND PROGNOSIS.

Complications in the treatment of these joint injuries will naturally arise, and they will have to be treated by the general rules of surgery. On the whole, there will probably be a greater mortality from the new .30 calibre than formerly; for not alone will a larger number of combatants be injured, but a greater number will die from primary hæmorrhage. But to speak of the prognosis of joint injuries from the new .30 calibre projectile it would seem as if not only would the ratio of mortality be greatly decreased, but the number of limbs saved and restored to usefulness would be very large. The simple cylindrical bored wound of the new .30 calibre projectile through the ankle-joint, if rendered clean, must be a far less serious affair than the conoidal smashing wound of the .45 calibre bullet.

The conclusions that may be formulated as regards gun-shot wounds of the joints with the new .30 calibre projectile are as follows:

(1) That joints having large synovial cavities will have to be thoroughly explored and cleansed, except possibly where the injury has been received at mid and long range.

(2) That small or superficial joints with small synovial areas will simply require cleansing and tamponading.

(3) That it will require a larger number of company bearers, Red Cross workers and surgeons than have ever been assigned for duty.

(4) That so far as joint injuries are concerned the new .30 calibre is more humane than the .45 calibre bullet.

BIBLIOGRAPHY.

LaGarde, L. A. Remarks upon the comparative difference between certain wounds inflicted by the projectiles of the large and small calibre weapons. Read before the College of Physicians, Philadelphia, May 3, 1893, by Dr. Guy Hinsdale, for Capt. Louis A. LaGarde, U. S. Army.

Bruns, P. Beitrage zur klinischen Chirurgie, 1890, vi, 1. Effect of bullet of the new small calibre firearms. A contribution to future military surgery. Experiments on human cadavers, animals, etc.

Noel. Le bulletin medical, Paris, 1891, v. 179. Des traumatismes par les nouveaux fusils de petit calibre.

Delorme. Revue militaire de medicine et de Chirurgie d'Armee, 1881.

Chauvel et Nimier. Traite pratique de Chirurgie d'Armee, 1890; Arch. med. milit., 1891, No. 2.

Rogardik. Der Militararzt Wien., 1891, 22; Abst. Wien. kl., 1890. Effect of bullet of the Mannlicher gun. (M. 1848.)

Thurnwald. Der Militararzt Wien., 1891, 111. Effect of modern small calibre covered bullets in comparison to former soft and hard bullets, observation from the military surgery standpoint.

Reger, A. Centralblatt f. Chirurgie, Leipzig, 1892, xix; Bericht uber die Verhandlung der Deutschen Gesellschaft f Chirurgie, xxi, Kongress, p. 15. Signification of the new firearms in military surgery.

Stitt, E. R. Medical Record of New York, 1892, xli, 147. Report on wounds by Mannlicher bullets in Chilian Civil War.

Messner. Muchn. med. Wchnschr., 1892, xxxix, 23.

Ewing, C. B. Boston Medical and Surgical Journal, 1892, cxxvi, 463. The wounded of the Wounded Knee battlefield, with remarks on wounds produced by large and small calibre bullets.

ASEPTIC HAIRDRESSING. — A barber in Paris has posted in his shop the following sign: "All persons having a contagious disease of the beard or scalp are requested to inform the barber of it, that he may use special instruments and so avoid spreading the contagion."

RECURRENT TONSILLITIS.[1]

BY G. A. LELAND, M.D.

The subject of recurrent tonsillitis is one which is forced upon the attention of the general practitioner often with distressing frequency; and the young physician, perhaps also the older one, is often disgusted at his inability to prevent it, or to really palliate it. From month to month, or perhaps more frequently, these tonsils come under observation, with all their annoyance and distress, not to say danger; and the efforts put forth for relief are all but powerless. The onset of the exacerbation may be sudden, ushered in by a chill more or less marked, with high fever, followed by more or less formidable swelling, with exudation, white or yellow patches, etc., to subside after a week or two; or it may go on to abscess, intratonsillar or peritonsillar, with great distress, forced starvation, restless days, sleepless nights, extreme prostration and anxiety (both for patient and physician), requiring weeks or months for recovery. The mental state of the attendant is not an enviable one when he knows that he may have a sudden fatal termination from extreme faucial swelling, œdema glottidis, suffocation from sudden discharge of pus, or by involvement of the great vessels, the carotid and internal jugular, by extension of inflammation.

In general, there are two varieties of tonsils which are subject to such recurrence. First, is the tonsil which in an inflammatory attack simply rounds out an increase in size — smooth, red, shiny, the parenchymatous variety. The crypts or lacunæ are not markedly developed, but the lymphoid elements are increased in size and in number (Virchow). If the capsule is broken and the finger introduced, a soft, friable feeling is communicated to it, something like that of the normal spleen. After several inflammatory attacks, these tonsils are adherent to the pillars of the fauces, and especially when this adhesion has taken place, are they apt to be permanently enlarged, and even to close the faucial passage pushing forward the uvula, with every slight cold, or disturbance of the digestion, or from some other ill-defined cause, so that the voice and respiration of the sufferer are much affected.

The other variety is the chronic tonsil, which has a hard, rubbery feel, whose surface is full of crypts or lacunæ which run into its depth from one-quarter of an inch to one inch or more, which crypts usually contain inspissated secretion of a cheesy consistency and of a most offensive odor. This is the "lacunal" tonsillitis of Wagner or Brown. It may be large enough to just project beyond the pillars or it may reach even to the uvula. Because of the diseased condition of the interior of the crypts, it is especially liable to frequent inflammatory attacks from even the slightest cause. It acts as a foreign body in the fauces, producing a tickling, hacking cough, giving a malodorous breath; and doubtless keeps the general health of the patient down from the absorption of these decomposing cheesy masses through the tonsil itself, or from their being swallowed. It is said that attacks of indigestion light up inflammatory conditions in the tonsil. It is probably also true that the contents of the crypts excite or keep up a fermentative indigestion. This variety of tonsil is doubtless the result of repeated inflammatory attacks of the first variety.

[1] Read before the Boston Society for Medical Observation, May 1, 1893.

It has always seemed to the writer that the ordinary methods of treating these enlarged tonsils have been extremely futile; that advocates of sprays, washes, gargles and pigments applied to the surface of the tonsil have lost sight of the fact that the tonsil is an organ of considerable size covered by mucous membrane, and hence these applications can have scarcely any more effect than that of a counter-irritant, externally applied to have an influence over any internal organ. Brudenell Carter in his work on the eye, speaking of blepharitis, says, "When Sidney Smith saw a little girl patting the shell of a tortoise in order to please the animal, he told her that she might as well pat the dome of St. Paul's to please the dean and chapter." It seems just as rational and just as efficacious to apply remedies to the outside of these enlarged tonsils. Even excision of the tonsil except of the first variety, as usually practised, fails to reach the bottom of the crypts; and, although it is often done with great benefit, it may also be considered a sacrifice of science to expediency. The stumps will still contain more or less of the crypts in this diseased condition, and if the stumps do not atrophy, as they commonly do not, the pillars of the fauces are still widely separated impairing the flexibility of articulation. But if the crypts themselves can be treated so that their contents will not remain to excite frequent inflammation, the tonsils will subside into a quiescent state and shrink to a small size, provided the fibrous elements have not been so largely increased as to interfere with shrinking. Hence about ten or twelve years ago, a suggestion found, I think, in a French medical journal promised to be a step in the right direction. This suggestion was that a syringe with a long nozzle bent at right angles an inch from the extremity, could be used to remove the decomposing matter from the lacunæ, and that then the tonsil would shrink away having lost the exciting causes of inflammation. I, therefore, had this syringe made and used it for a couple of years assiduously; but as it did not seem to meet the indications satisfactorily, or quickly enough, it has been used less and less in favor of a method which I saw mentioned some eight years ago, and which McBride says was advocated by Hoffmann, namely, the tearing away of the partitions between the crypts, so as to connect the many small contracted mouths into a few large, wide open ones.

As is well known, a tonsil which has suffered many attacks may have a surface more or less reticulated by fibrous bands between which are small holes which lead into crypts which are often large enough to contain many cheesy pellets; or the mucous membrane of the surface may be fibrous and tough. It is probably true that the septic contents of a crypt, acting as a foreign body, may start up an inflammatory attack which will close the mouth and so produce an abscess cavity, and this seems to be a rational explanation of recurrent abscess of the tonsil. Or the septic matter may be absorbed into the lymph spaces in the connective-tissue outside of and around the tonsil, and produce the peritonsillar abscess. Now, in the chronic variety of these tonsils these crypts can be united so as to form large mouths which will readily allow their contents to pour into the throat before they have become diseased. The introduction of caustics or the actual cautery into the crypts does not seem, at least in my hands, to accomplish the same result. First, because the application is a good deal wasted upon the

contents of the crypts, since it is difficult and tedious to completely empty them; and, second, because it may not reach their farthest depth, and the inflammatory products produced by the application have the same small hole to get out of, or nearly the same, as before. Doubtless, however, good results are obtained in this way, although I think there is more discomfort to the patient, and less ease and facility on the part of the surgeon, than in Hoffmann's method. His blunt hook was used by the writer for a number of years, but cases were encountered where the tonsil was too tough to be easily torn by a blunt instrument. The idea then suggested itself that the inner edge might be made sharp, and that thus the instrument might be much more effectual and the operation more nearly painless. It was then that these knives were made by Goldthwaite & Co., at my suggestion, and I have treated this variety of tonsils for several years with them with the greatest comfort to myself and with the least discomfort to the patient. Gampert has lately called attention to this method, which he calls "decission of the tonsils." He also observes that many follicles communicate, and if the fistulous tracts be incised, the cicatrization occurs as in similar passages.



It is well known that the tonsil is not very sensitive, and I have often used this knife without the patient being aware that I was doing any cutting. The method is simply as follows: The olive-shaped tip of the knife is introduced into a crypt in the upper part of the tonsil, and then turned downward and inward and made to come out by another in the lower part. The substance of the organ between these two holes is then cut through. This can be repeated from three to ten times at a sitting until the surface of the tonsil presents the appearance of being full of slits. There is usually not much hæmorrhage, and this knife can be introduced oftentimes to its fullest extent without danger. As soon as the bleeding has ceased, the slits are painted with Monsel's solution, or with a mixture of glycerine and tincture of iodine in equal parts. These solutions may be put upon the end of the cotton-wrapped bent applicator and crowded down to the bottom of the tonsil. This is done for antisepsis, and to prevent the wounds from uniting immediately as they tend to do, thus rendering the operation futile. The patient is advised to gargle with hot water very frequently for three or four days, and to return in a week for another operation, if necessary. Dobell's or Seiler's solution, or a little borax, may be added to the hot water. It usually requires from four to eight sittings to cause a large tonsil to recede from the median line to a position almost out of sight behind the pillars of the fauces. If the tonsil is very fibrous and hard there will be left small projections upon the surface. These can be readily nipped off with adenoidal forceps or can be seized by long dressing-forceps and removed with a blunt-pointed bistoury. The patient is then instructed to return on the slightest symptom of the old trouble, that any crypt which has escaped treatment may be attended to. In adults this method can be carried out with the greatest facility and ease, and often in children as young as ten years of age. I have also been able to operate with satisfaction, although with a little more necessary persuasion, in children as young as five or six; and recurrent tonsillitis is not apt to occur younger than that, at least in my experience. The first variety of tonsillitis, in which the crypts are not so much developed or so fully diseased, is much benefited by this method if the capsule is torn or cut and the solution applied to its interior, and perhaps even if only adhesions between the tonsil and the pillars of the fauces are cut away by this method. It has been said by some one, whose name I have forgotten, that these adhesions can be removed by the galvano-cautery flat knife. I have tried this on one or two cases, only to give it up because of the pain of the application and the extreme soreness of the throat afterward. By the use of this knife, however, the pain of the operations is comparatively insignificant; and, although the tonsil may be sore for a day or two, it is not so sore as to give the patient great inconvenience. Oftentimes the patient returns, and says that the throat has not been sore at all; but, of course, in this, as in many other things, there are various degrees of complaining.

In Lennox Browne's third edition, in speaking of "Chronic Inflammation of Tonsils," he says: "Treatment of chronic lacunar disease is very tedious and unsatisfactory when the tonsils are not hypertrophied. It has been proposed to squeeze out the cheesy secretion from each diseased crypt, and then to apply solid nitrate of silver or other caustics — preferably the galvano-cautery if available — to the cavity. Such measures are, however, but too frequently only tentative, and not of permanent benefit. It is better to treat such cases on general principles, according to the diathesis and to give guiacum or chlorate-of-potash lozenges. Whenever (as is almost certain to occur in these cases) active inflammation causing enlargement takes place, it is to be rather encouraged than arrested, and the gland then removed." He says he has frequently pursued this plan with the most satisfactory results; but it is in just these cases that the method of Hoffmann finds the happiest application. Often the inflammatory attacks are not extensive enough to produce an enlargement of sufficient size to be seized by the guillotine; and at all times, preferably when there is no inflammatory engorgement, the little crypts can be entered by these olive-pointed right-angled knives, their mouths enlarged or united, and the cavities shaped so that they cannot retain their easily decomposing secretion. There are often seen cases, where the tonsils are of minimum size, where only two or three crypts are chronically diseased, but where these cause the patient frequent discomfort, annoyance or alarm. It would be tedious indeed to wait until they were large enough to be guillotined.

(To be continued.)

A LAW in Germany requires that all drugs intended for internal use be henceforth put up in round bottles, and those for external use be placed in hexagonal bottles. This enactment is precautionary against poisoning.

REDUCING THE TONSILS.[1]

BY THOMAS AMORY DE BLOIS, M.D.

There are conditions in the throats, of both children and adults, in which it becomes necessary to reduce the size of the tonsils. This does not refer to the enlargement of inflammation, nor to the sometimes sluggish return of tonsils to their normal size after more or less severe attacks of tonsillitis. But whether congenital, the result of disease, or the accompaniment of certain diatheses, the fact still exists that in certain cases the tonsils interfere with the well-being of the individual and relief of some kind is called for.

This interference sometimes manifests itself by lessening normal and quiet respiration, particularly during sleep — less often it is shown in the act of swallowing; besides there is a popular belief, that recurrent attacks of tonsillitis are due to the enlarged condition of the tonsils. But this latter is probably a substitution of cause for effect! Frequent attacks of tonsillitis will in most cases produce enlarged tonsils, rather than be caused by them.

Entire removal of the tonsils, or a complete peeling out of the gland, is an operation which was once practised in Italy, but has now fallen into disuse, and as a substitute for it, a slicing off of a portion was much used. This amputation was done both by the bistoury and scissors and also by the tonsillotome. The latter had various mechanical actions — cutting while sliding back, cutting while being pushed forward, cutting by circular scissors, cutting both tonsils at the same time — to be used according to the fancy of the operator or inventor, and all resulting in the same clipped gland, with a hard, flat, cicatricial surface in the fauces.

The pain of tonsillotomy even under cocaine was considerable; the dread of the operation, where it was understood, was great. Although I have removed tonsils under ether, I think it is generally considered that the operator should have the assistance of the patient in freeing the respiratory tract from blood. Then if you did not use ether, you had the panorama of the screaming child, the hysterical mother, the cracked ice, and the nasty, styptic iron — not dangerous but very unpleasant! The blood frequently oozed; it seldom spurted; and although, as Dr. D. B. Delavan, of New York states, there is not a fatal case of tonsillotomy on record,[2] yet bleeding to syncope has sometimes occurred.

To obtain the same result, perhaps to crawl out of the cutting operation, many substitutes have been devised. Injections of different kinds into the structure of the tonsils were used, applications of nitrate of silver or London paste (caustic potash) being pushed to the bottom of the crypts of the tonsils. Sometimes considerable benefit was derived from the ulcerative action of these escharotics.

I have used electrolysis in chronic hypertrophy of the tonsils, in which cases I sometimes introduced one and sometimes two electrolytic needles. I certainly got absorption and diminution in size by the action of the galvanic current; but the operation was slow, was painful and had to be frequently repeated, and each successive treatment brought only repeated dread to the patient.[3]

Following in the footsteps of Dr. Charles R. Knight, of New York,[4] I have removed tonsils with the cautery loop, either fixed or contractile; but this adds little to the advantages of ordinary tonsillotomy, except the arrest of hæmorrhage and the sealing up of the cut surface.[5] Dr. Knight's experience with the cold-wire snare ecraseur is, to say the least, not encouraging; even under cocaine the pain was described as being so intense as to form a great obstacle in the mind of the patient (an adult) to submitting to the removal of the other tonsil with the galvanic cautery loop. As regards the effect of the mode of removal on the subsequent cicatrization, it does not seem to me to make very much difference. The burned surface seems to repair as quickly as the cut surface; both leave the same hard cicatrix. Of course there is always the liability of burning the pillars of the fauces and causing some inflammation and œdema from that accident.

Another operation, not original perhaps with my colleague Dr. Leland, but at any rate first used here by him, consists in the transfixion, from one crypt to another, of the tonsil, with a stiff, steel probe. (I have for this operation made use of the ancient and discarded steel hand-plugger of the dentist.) Then the intervening tissue is torn through by a more or less vigorous tug or twist. After half-a-dozen or so of these tracts had been thus divided, the gland is left to suppurate and contract during healing. I have made use of this procedure frequently, particularly, as is often the case at the City Hospital, after the patient has been thoroughly cocainized, it is discovered that the electricity has decamped for parts unknown. Then this tearing operation is the best thing to do to conciliate the parents, who expect something to be done and who have been sent there with that expectation, possibly, by their "family doctor."

I confess that sometimes, in Dr. Leland's operation, I have wondered whether the whole tonsil and perhaps the pharynx besides, would not come away when I sometimes tugged to break through a particularly thick bridge of tissue. And besides this, I do not think the after-results are quite as beautiful as they should be. There is a very gnawed or worm-eaten look to the surface — suggestive of the shaggy coat of the chorion under powerful microscopic enlargement. The mucous covering of the tonsil has certainly been saved, but there is an untrimmed look about the whole thing, like an unfinished picture.

Lastly, we come to ignipuncture. Fifteen years ago, before the discovery of the local anæsthesia of cocaine, and when the galvano cautery was not much in use, Dr. F. H. Bosworth, of New York, was in the habit of thrusting a silver wire, previously heated over a spirit lamp, through enlarged follicles of the pharynx to bring about scar contraction. This operation, after the general use of the galvano-cautery point, became quite the routine procedure. Exactly when this ignipuncture was used in the reduction of enlarged tonsils is difficult to state. Dodart[6] reports it as the operation of choice. In a paper by Ouspenski[7] "the method by galvano puncture is highly praised." Valat,[8]

[1] Read before the Boston Society of Medical Observation, May 1, 1893.

[2] Annual of the Universal Medical Sciences, vol. xiv, p. 13.

[3] See Dr. Daly, of Pittsburg: Transactions American Laryngological Association, Washington, 1882.

[4] Note on the Galvano Cautery in the Treatment of Hypertrophied Tonsils. A paper read before the American Laryngological Association (Eleventh Annual Congress).

[5] Although Werner had a case of hæmorrhage for four days following the cautery-loop operation and the patient was saved by compression of the carotid artery for one hundred and ten days; and also although Delavan has seen diphtheria follow in four cases after operation with the cautery loop.

[6] Thèse de Bordeaux, 1888.

[7] Annales de maladies de l'Oreille du Larynx, etc., July, 1888.

[8] Gazette des Hôpitaux, No. 132, 1888.

and Wilhelm Roth[9] both speak in praise of the operation, particularly for children. "Roth advises the operation, preceded by an application of a twenty-per-cent. solution of cocaine, to be repeated four or five times at intervals of two or three days. He finds this sufficient to reduce the tonsils to their normal size, with scarcely any pain and without the risk of troublesome hæmorrhage, which contrary to his own experience," he says, "is not uncommon, especially in young children."[10]

Whether the tonsils of the American present are larger and more difficult than those of the German past, I know not; but certainly I have never obtained the brilliant results nor the total absence of pain depicted as above. At the City Hospital during the past winter, I have operated with the galvano cautery in about thirty cases during six months of continuous service. These cases ranged in age as follows: there was one case of two years of age; one of three years; three of five; one of six; seven of seven years; one of eight; one of ten; three of eleven; one each of twelve, thirteen and fifteen years; two of sixteen; one each of seventeen and nineteen; three of twenty years; two of twenty-one, and one of twenty-three years. After that there was one case of thirty-one, and one of forty, illustrating Sir Morell McKenzie's theory that the tonsils undergo spontaneous atrophy after thirty years of age. I endeavored to do what I could for as many patients as I saw. I do not know whether this number out of, we will say, four hundred new patients (such being about the attendance of the winter months) would represent the proportion of enlarged tonsils; but that is all that the record shows. My usual procedure is as follows: Allow that the patient is a child of five or six years of age, I make an application to the tonsils, with a cotton stick wet with a solution of muriate of cocaine, say of a strength of four or five per cent. I try to get as little of this into the pharynx as possible and endeavor to keep the child's mouth open and tongue quiet until some drying or absorption has taken place. Then they are allowed to expectorate, and of course they get rid of all the cocaine on the tonsils. In five or ten minutes I repeat the operation, and watch the pulse and also the child, for toxic symptoms are possible! If the child be strong, I may make a third application. In the case of an adult it is about the same, except that I use a ten or twenty per cent. solution of cocaine. At the expiration of perhaps fifteen minutes from the time of the first application, while holding the tongue down with a depressor, I push the cautery point down into the tonsil about a quarter of an inch. I purposely try not to strike one of the crypts, the mouths of which I do not care to seal up. The pain, I do not think is very severe, even after you have got through the mucous coat which I believe is the limit of cocaine anæsthesia (when it is not injected). Some slight inflammation follows and some little sloughing from the burned parts. I have occasionally seen a diminution in size (which I estimated at about a quarter) follow at the end of ten days after the first burning. The ignipuncture should be repeated perhaps three times, which will probably give as good results as can be obtained in this way. I will not burden you with a history of my thirty cases, and tell you how much relief A. B. got, and how much C. D. did not. In a treatment of this kind it is largely routine, one case closely resembling another. About half the cases will show some improvement after the first burning, and this will be more apparent in children of from five to fifteen years of age than in any other cases, for the younger ones do not tolerate a proper application either of cocaine or fire, and in the older ones the tonsils do not seem to reduce so easily.

There are certainly one-quarter of the cases in which progress is either so slow or so unsatisfactory that further treatment in this way is abandoned. Then the tonsillotome will make its appearance. I have had four such cases. It appeared to be the only thing to do. I do not wish to convey the impression that galvano-caustic puncture is by any means a perfect method of treating the tonsils. But take it all in all, it is the best that we at present have at our command, and it is certainly far better than the wholesale clipping which formerly was the fashion, when we believed that every enlarged tonsil should be cut.

[9] London Lancet, February 16, 1889.
[10] C. H. Knight, in paper as quoted before.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL OBSERVATION.

JOHN C. MUNRO, M.D., SECRETARY.

REGULAR Meeting, Monday, May 1, 1893, DR. J. G. MUMFORD in the chair.

DR. DEBLOIS read a paper on

REDUCING THE TONSILS.[1]

DR. G. A. LELAND presented a paper on

RECURRENT TONSILLITIS.[2]

DR. FARLOW: The tonsil is an organ liable to have all sorts of irritants about it and in it, and these irritants should be removed if possible. Troubles with the teeth, tongue, mouth, pharynx, naso-pharynx and stomach can cause the tonsil to enlarge. It should be noted whether the tonsil is adherent to the pillars of the fauces and such adhesions should be freed. All secretion should be removed from the follicles and especially from between the tonsil and the anterior pillar and from the sulcus between the upper and lower lobes of the tonsil, the two latter being favorite places for the retention of large masses of irritating secretion.

Where there are a number of enlarged and diseased follicles I have been in the habit of breaking down the walls between the follicles and opening up several follicles into one common opening, in the way that several fistulous tracts might be better drained by laying them open into a common tract. It is also possible to cut out a piece of tonsil which contains several diseased follicles near together.

Dr. DeBlois speaks of cocaine working on the surface of the tonsil only. According to my experience, the tonsil is not a sensitive organ and cocaine used on the mucous membrane causes sufficient anæsthesia to allow very deep cauterizations and incisions without pain.

In children with soft tonsils internal treatment is often of great service and local astringents are of some, but not much, benefit. I have been able to use the cautery in many instances with very good effect. But

[1] See page 375 of the Journal.
[2] See page 373 of the Journal.

where the tonsils are the seat of true hypertrophy and are very large, it is, by all means, the best plan to remove them. I usually give a little ether, just enough for primary anæsthesia, put the cold wire snare well round the base of the tonsil and with the écraseur movement it is possible to remove the enlarged organ without the loss of any blood. Where the tonsil does not project sufficiently to be caught in the wire I have sometimes cut the capsule and with my finger broken up the friable inside of the tonsil with the result that a considerable diminution in size has followed.

Dr. DeBlois has spoken of the tonsils atrophying as one grows older. I have had a lady in my office to-day, 57 years of age, both of whose tonsils are very large — a simple hypertrophy.

With regard to intratonsillar abscess, as spoken of by Dr. Leland, I should say that such cases were very rare. I have seen a few instances of cysts, resulting from the retention and liquefaction of secretion in several follicles whose walls had broken down forming a cyst near the surface. But true abscess has usually been found around and not in the tonsil.

Two years ago I had a very interesting case of conversion of the entire tonsil into a large cavity filled with cheesy matter. The opening to this cavity was quite small. After thorough evacuation and disinfection a few applications of the cautery caused the entire cavity to close up so that I was no longer able to find the opening.

DR. TEMPLE: I should like to ask the reader whether in these cases of recurrent tonsillitis in children eight to twelve years old he has had any better results following out the lines of treatment early, say at the age of eight or nine, than where the case has been delayed longer, in other words, whether the recurrence of the trouble does not place the tonsils in such a condition that it is hard to treat them effectually by the method he suggests.

DR. DEBLOIS: I think treatment should be carried out as soon as we observe the enlarged condition of the tonsils.

In reply to Dr. Farlow I would say that it seems to me the difficulty that he spoke of in cutting through and then using the cautery-point when cutting away the dividing lines between several crypts is, that the chances are, that you do not seal up from the bottom. If you can be sure of striking the bottom of your cavity it certainly is a very excellent way to use the cautery. I think that after the operation of tearing or burning down the tonsil, then if tonsillotomy is necessary it certainly affects the stump that remains. Since I wrote this paper I saw for the first time one of the cases which I spoke of where I had persistently burned through and endeavored to reduce a tonsil in a young woman of sixteen and finally, as a last resort, cut it out with the guillotine. The stump was scarcely visible. I had never seen a stump disappear as this did. Generally they stand out with a hard flat surface with sharp edges requiring a secondary operation to reduce them.

Dr. Farlow spoke of not having mentioned the matter of peeling out the gland. I think I spoke of it in the first part of the paper as having been practised in Italy. Dr. Daly, of Pittsburgh, had a way of seizing the tonsil with a pair of sharp-pointed forceps and drawing it towards the median line and then almost removing it with a sharp curved bistoury. I think that there has been in use a method with the cold wire snare of removing *parts* of the tonsil, particularly where it is lobulated.

Dr. Leland and I have written on rather different subjects. He took up the conditions connected with inflammatory processes in the tonsils, whereas I took only the chronic hard condition not connected with inflammation, except as a result.

DR. LELAND: I simply advocate this method as one I have used about eight years. I think it would be an easy one for the general practitioner to adopt. It is not adapted to all tonsils. Some of the large rubbery tonsils we cannot take the time to do in this way. If we can get a pair of tonsils out in five minutes, it is folly to take six or eight sittings to do it. Where you have a nervous family, with one or both parents very much opposed to having the guillotine used, and more opposed to having ether used, you can rather surreptitiously introduce this knife and the tonsils shrink away very satisfactorily.

DR. NICHOLS: I have had ever since I can remember one or two attacks of tonsillitis in the winter, and a year ago last December, Dr. Leland united the crypts of one tonsil with the blunt hook; and about ten days later, the other with the knife. Since that time I have never had any trouble in the way of tonsillitis.

Recent Literature.

The Chronic Disorders of the Digestive Tube. By W. W. VAN VALZAH, A.M., M.D. New York: J. H. Vail & Co. 1893.

This is a small octavo of 150 pages, and is a combination and reprint under one cover of various articles previously contributed to several medical journals. A paper on sea-sickness is added. There are five chapters, and two papers are added in an appendix. The author has aimed to make each chapter complete in itself. We notice in the text quite a number of foreign idioms, and there is also a tendency to "fine writing," which had better be spared where so large a subject is condensed into so small a book, and where there is an expressed desire to make each chapter complete in itself. The chapter on sea-sickness will not carry a large measure of comfort either to the perplexed practitioner or the perplexed patient.

The International Medical Annual and Practitioner's Index. A Work of Reference for Medical Practitioners. Eleventh Year, 1893. New York and Chicago: E. B. Treat.

The opening article in this book, "The Present Status of Therapeutics," by Professor Hare, is excellent. This is followed by the brief mention of a number of new remedies; but the main portion of the volume, which is illustrated, is devoted to what is called, "A Dictionary of New Treatment in Medicine and Surgery, 1893." Diseases are here alphabetically arranged, recent methods of treatment outlined, and the names of the physicians who have employed the given treatment, together with references to their articles, are added. "The Medical Annual, 1893," published in England, contains the same text as "The International Medical Annual," except for a few pages at the end of the volume, together with a mess of advertisements, etc., of interest chiefly to British practitioners.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, OCTOBER 12, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

"MEDICAL EDUCATION IN AMERICA."

IN the issue of the London *Lancet* of September 2, 1893, which is devoted to medical education, there is an article on medical education in America. The article, on the whole, is not an injudicious or discreditable one. The author criticises us from a somewhat elevated stand, and points out the mistakes we have made, says we are doing very well, but does not think that on the whole medical education in the leading schools in this country is on a par with medical education in England. He takes Harvard and Yale as the types of the best medical schools in this country. Some of the criticisms which he makes are good, others are not. Some of his statements are correct, others are not — as is too often the case when a Briton writes or talks about persons or things pertaining to other countries than his own islands.

It has not occurred to us for some time past to make any comparison between the leading medical schools in this country and the English schools. So far as we can judge by the fruits, medical education in the best schools in this country is far ahead of that in the English schools. For one well acquainted with medical literature there can be no doubt that the decadence of medical science in England during the last forty years has been most marked. This decadence commenced at the very time when medical science began to bloom in Germany under the influence of the stimulus which great teachers like Virchow, Rokitansky, Skoda, Frerichs and Traube gave to it. The reason is not far to seek. The stimulus which was given medical education in Germany at that time was due to the greater use of the experimental method in medical science leading to a closer investigation of the problems of disease. The falling off in England has been largely due to the small place given in medical education to the laboratory and to research. In medical education in Germany there is the further advantage of a close union between general and medical education. The medical faculty is the faculty of medicine of a great university, and profits by the stimulus which it receives from other branches of learning.

There is no doubt that the antivivisection laws of England have exerted a marked influence in retarding the advance of medical science. The very class in England which regards it as a noble sport to harry foxes to death with hounds and which shoots tame pigeons, is horrified at the idea of performing an experiment on a carefully anæsthetized animal, though such an experiment might greatly increase human knowledge. We, here in America, have also felt the need of laboratory teaching and research, and it is only in comparatively recent years that that part of medical education has begun to have the importance given it which it deserves. To the Johns Hopkins University, as well as to Harvard and one or two other schools, must be accorded the credit of giving to the laboratory the high place which it should properly hold in education.

At the present time in Harvard, as far as the student is concerned, the facilities for teaching in all branches of medicine are fully as great as can be found elsewhere. The clinical material for the purposes of teaching is abundant. The teachers are well-trained men familiar with the best methods of teaching in Germany and France, and they are sufficiently numerous to permit close contact of the student with the teacher. In most of the departments the student has the advantage of learning the views of different men on the same subjects. Abundant opportunity is given him to familiarize himself by practice with the methods of investigating disease. In obstetrics, not only does he have the various stages of labor explained to him at the bedside, but no student leaves the school before he has himself attended a number of cases of parturition.

The numerous hospitals of the city give him abundant opportunity for hospital work as a resident interne. Nor have the scientific branches of medicine, if one may speak of them as separated from the practical, been neglected. The first and second years of his course are largely given up to study in these branches. He receives in these both theoretical and laboratory instruction. The opportunities given him for laboratory work in anatomy, histology, medical chemistry, (including examination of urine), physiology, bacteriology and pathology are unsurpassed in any of the European schools. The theoretical lectures and laboratory instruction are given in a building conveniently located and admirably arranged for the purpose, the cost of which the author of the article in the *Lancet* learned on direct inquiry — with the view possibly of advocating the construction of a building with the same admirable equipment in England. The little slur with which the statement of the cost is accompanied may be regarded as both harmless and gratuitous.

As far as the student is concerned he is well taken care of, but the medical school which would be the

medical faculty of a great university, has another duty to perform. Only a part of its duty is done when it sends out its young men well equipped for the practice of their profession. The university has a much higher duty to perform in advancing human knowledge; and it is this which is its glory, and which gives it its best reputation. When we think of the great universities abroad, we do not think of them so much as educational centres where men are taught, but we think of them as the places where knowledge is increased. We think of the laboratories of Berlin, not as places where the student is instructed, but as the places which gave Virchow and Helmholtz facilities for their work. We do not think of the hospitals there, as the places where preeminently medicine is taught, but as the places which gave the material and the means for the work of Traube, Frerichs and a host of others.

There can be no doubt that we think too much of what is called the practical side of medical education. Medicine is not a fixed science; there are comparatively few laws in it which are certain and of general applicability. Many of the supposed facts which the student learns will be found to be erroneous in the course of a few years; and if he has not learned to investigate for himself, to observe and reason independently, then he has not learned the best. And this best sort of training cannot be given him; it must grow into him and become a part of him. It is only possible for him to acquire it when he is in contact with men who are investigators, and when the spirit of investigation is in the air he breathes. We cannot give a man malaria; we do not know exactly the manner in which it enters into him; but if he go into a country where, as they say in the south, "the air is full of it," he will have his chill in due season.

Certainly the best men we have here and the best men in England also, are men who after their medical education at home (applying the term medical education to the years of study before a degree is given) have studied in the Continental universities, especially in the universities of Germany. What is it that they get there which has such an influence on them? It is not that they have superior opportunities of seeing disease; it is not that the facilities for teaching there are better than ours; but it is their contact with men who are investigators, and the absorption through such contact of some of the spirit of investigation. For such a medical department, especially for the scientific branches, large endowments are necessary. Larger endowments, even, than any of the German universities have, because here the cost of living is enormously in excess of what it is in Germany.

That with the same facilities our Faculties of Medicine would be as productive of good as the German cannot be doubted. Our medical schools have been hampered in the first instance by the absence of a close and integral union with those other branches of learning which compose the faculties of a university, by being more or less technical schools where the art of medicine is taught; secondly, by the absence of endowment, making the remuneration of the teachers dependent on the fees of the students, and the work of research almost impossible.

THE BACTERIOLOGY OF DIPHTHERIA.

It is now generally admitted that the Klebs-Löffler bacillus is the cause of diphtheria, hence the presence of this bacillus in the exudate is necessary for accurate diagnosis. This fact is now recognized and the bacteriological study of this disease is everywhere assuming great importance.

It is known that the presence of a false membrane is not characteristic of diphtheria, for various caustic chemical agents may produce it, and parasites other than the diphtheritic bacillus, such as the staphylococcus aureus and the streptococcus pyogenes.

Veillon has lately published[1] an interesting *résumé* of the mode of action of the Klebs-Löffler bacillus and of other micro-organisms influential in producing or favoring the complications of this disease.

The Klebs-Löffler bacillus having gained access to the excoriated skin or mucous membrane and effected lodgment there, multiplies actively; sometimes, though very rarely, it causes only a little redness (angina without false membranes), but generally, it produces a violent inflammation of the mucosa, and soon a false membrane appears. In fact, the parasite vegetates on the surface of the epithelium, where it readily secretes its toxic products, the mucosa becomes congested, œdematous; the epithelial cells swell and become vesicular; the chorion is infiltrated with leucocytes and a few red corpuscles; the small vessels are often thrombosed; at the same time, the exudated fibrine forms on the surface of the mucosa a thick network whose meshes enclose lymph cells, red corpuscles and necrosed epithelial cells. It is in the interstices of this false membrane that the bacilli pullulate; "*they never penetrate the mucosa, they never invade the glands, the internal organs, the blood.*" This last statement is not in accord with other observations and is probably more positive than our present knowledge would justify.[2]

But the activity of the bacillus is not limited to the production of the false membrane, the angina and the croup; it secretes a toxine which is readily absorbed and poisons the whole organism. This toxine, studied by Roux and Yersin, is fabricated out of the protoplasm of the bacillus, and is found in abundance in the culture bouillon and may be freed, by filtration, from the bacilli. This poison, which bears a striking similarity to a diastase, or to the venom of certain serpents, is soluble in water, and is precipitated by alcohol; it is attenuated and destroyed by a temperature of 60° C to 100° C.

Gamaleia believes this poison, which has not yet been isolated in a state of purity, to be a nucleo-albumin derived from the bodies of the bacilli. It is

[1] Semaine Médicale, September 20th.
[2] Journal, vol. cxxviii, p. 502.

extremely active. A centigramme of the evaporated residue of a bouillon culture is sufficient to kill eight guinea-pigs, each weighing a pound. By the inoculation of this poison in animals, almost all the characteristic lesions of diphtheria may be reproduced. Sometimes a subcutaneous injection causes mortification of the skin and an eschar. It is this toxine which produces the general prostration, the fatty degeneration of the liver and heart, the nephritis and albuminuria, the fibrinous effusions in the pleura, congestions and even hæmorrhages in the internal organs, and lastly, the paralyses so characteristic of diphtheria.

That the disease, though primarily local, very soon becomes general by reason of its toxine, is proved by the fact that these paralyses often follow benign cases, and death has been known to supervene by syncope in full convalescence — evident proof that the myocardium has been touched by the toxine.

But, in a great many cases, the diphtheritic bacillus and the toxine which it secretes are insufficient to explain all the lesions and symptoms of diphtheria; for, in fact, the disease is much more complex than has been generally supposed. Certain accessory germs, mainly cocci, during the course of the disease invade the pseudo-membrane, the inflamed mucosa and sometimes the internal organs, having obtained a nidus favorable for their development in the diseased focus. These accessory germs increase the severity of true diphtheria. It is these, in Veillon's estimation, which form the thick exudates which cover the tongue and the gums, and which cause the fetidity of the breath. These microbes are principally the streptococcus pyogenes, the pneumococcus and the staphylococcus pyogenes.

The streptococcus exists quite often in the mouth of the healthy man and under the influence of a disease like diphtheria, it might be expected to develop abundantly and become pathogenic. Even where it is not a previously harmless parasite of the mouth, it may be introduced, through dust, in the air of respiration. This parasite seems to augment the inflammatory reaction; it tends constantly to infiltrate the mucosa, and it often penetrates the glands by the lymphatics, causing suppuration. It is found in the tracheal or peritracheal abscesses after tracheotomy; and in a certain number of cases, it causes the purulent pleurisies and the broncho-pneumonias which are so formidable when occurring in diphtheritic children. The toxine of diphtheria, by its depressing influence, evidently favors the development of the streptococcus, which often infects the entire organism, causing those septicæmic forms which are so often fatal.

Next in frequency after the streptococcus comes the pneumococcus, which may be found in the false membranes, and like the streptococcus may cause suppurations, otitis, purulent pleurisies and broncho-pneumonias. Sometimes this microbe is associated with the streptococcus.

The staphylococcus pyogenes is much less frequently associated with the Klebs-Löffler bacillus; it may, according to Veillon, cause suppurations of little gravity (small abscesses) and impetigenous eruptions. In rare cases, the bacteria of putrefaction have been found associated with the specific bacilli and the pyogenic cocci, causing secondary gangrene (Netter).

As a result of this knowledge of the pathogeny of diphtheria and of the accidents which attend it, and which may be defined: (1) local accidents due to the Klebs-Löffler bacillus; (2) general accidents due to the toxine; (3) accidents due to the secondary infections, it is evident that the treatment must be sufficiently complex to oppose each of these sets of morbid manifestations.

The parasite being localized in a limited point of the mucosa, it is natural that means should be sought to destroy it *in situ* and prevent its development. The remedies which have been employed with this intent are manifold; the ideal antiseptic must be active enough to kill the bacillus or arrest its multiplication, while so little caustic as to respect the integrity of the mucosa. Löffler favored corrosive sublimate, Roux and Yersin phenic acid. The sulforicinated phenol has high endorsements; the same may be said of camphorated naphthol.

The difficulty is to reach the parasite, which is generally well protected in the meshes of the false membrane. Veillon, in accordance with the principal authorities of the French school, advises ablution of the false membrane by means of cotton wool wrapped around curved forceps. Rather, however, than wound the mucosa and make it bleed, he would let the pseudo-membrane alone, contenting himself with sprays and irrigations to limit the spread of the disease. The lavages should be very frequent, every hour or even every half hour.

To antagonize the toxine, Veillon regards the frequent irrigations also as excellent, for these may be expected to wash away a part of the poison, which is soluble in water. As the toxine has been found to be much less active in an acid medium (as shown in culture bouillon), lactic or tartaric acid may with advantage be used as one of the remedial agents to be frequently employed in the form of spray or irrigation; Veillon prefers a saturated solution of boric acid to which lactic acid is added in the proportion of one per cent.

But as no local applications can affect the toxine which is already absorbed and in the blood, some antidotal agent must be sought for that can meet and neutralize the poison in the organism. It may be that such antitoxine will be long a desideratum, but Veillon expresses much faith in sero-therapy, which he thinks has "a brilliant future" awaiting it. Behring and Kitasato seem by their studies to have arrived at a method of attenuation of the diphtheritic virus by which guinea-pigs may be rendered immune against diphtheria, and an injection of trichloride of iodine is said to have the same effect in animals that have been inoculated with the Löffler bacillus. An animal in which Behring's serum has been injected is found

weeks afterward to be protected against powerful doses of the virulent toxine.

At the present time, these experimental notions seem for many reasons to be with difficulty applicable to man, and often when the physician is called in, the toxine has already made irreparable ravages in the economy. The method of sero-therapy will, however, be perfected and future experimenters will, perhaps, succeed in obtaining a curative serum still more active, or they will isolate the antitoxic principle, which will be easier to manage.

MEDICAL NOTES.

Notification of Tuberculosis. — The Philadelphia County Medical Society has appealed to the Board of Health, of Philadelphia, to place tuberculosis upon the list of contagious diseases to be reported to the Board.

Yellow Fever. — The outbreak of yellow fever at Brunswick, Ga., has increased steadily the last week. On October 1st there were twelve new cases reported and this number has increased daily until there are now about thirty new cases each day. The death-rate so far has been low. The disease, which appeared at Jessup October 1st, has not assumed a serious aspect there as yet.

Cholera. — The number of cases of cholera reported from infected districts in Europe is steadily diminishing; but there is a constant increase in the number of places reported infected. This is especially true in Spain and Holland, where widely separated districts are reporting each a few cases daily. In Italy there is a decided improvement in the epidemic, both in Palmero and Leghorn and Naples where there are but a few new cases. In Russia there is a very large number of cases, with a heavy mortality. Moscow, Keiff, Podolia and Nijui Novgorod are the most severely afflicted, having a total of about seven hundred deaths a week with a constantly increasing number of cases throughout the provinces. So far the quarantine station at El Tor has been remarkably free from the disease and but one case has occurred among the pilgrims.

An Anomalous Biceps Muscle. — Thébault recently showed to the Anthropological Society of Paris a human biceps muscle which had three supernumerary muscular bundles. One rose from the long belly of the biceps and was inserted in the pectoralis major. A second had its origin from the fleshy body of the muscle and joined the brachialis anticus. The third bundle extended from the upper surface of the muscle to the superior margin of the capsule of the shoulder-joint. This anomaly is analogous to the condition found in the gibbon.

Paris Water-Supply. — The doubts at first entertained as to the sufficiency of the new water-supply of Paris, have been completely cleared away. The 110,000 cubic metres delivered by the new pipes from Avres are more than sufficient; and even the long drought failed to overtax the supply, 28,000 cubic metres more than last year having been available. The Seine water will soon be no longer used, as plans have been submitted to bring to Paris water from Breuil. The effect of this new water-supply will be to greatly improve the health of Paris.

Medical Fees in Russia. — An official regulation of medical fees is to be exercised by the Russian Government. There are three classes, divided according to the Russian social scale which is in itself somewhat complicated. The obligatory fee in each class is proportionate to the supposed ability to pay. The first class includes capitalists, landed proprietors, manufacturers, bankers and merchants in large cities who are expected to pay a fee of five roubles. The second class, professional men and employés of the seventh and eighth class, pay three roubles, while all others, villagers, etc., are to be treated for thirty kopeks.

BOSTON AND NEW ENGLAND.

Report on Sanitary Legislation. — At the next meeting of the Section for Clinical Medicine of the Suffolk District Medical Society, October 18th, the committee appointed to secure from the legislature improved sanitary legislation will make its final report.

Public Bathhouses. — The Boston public bathhouse statistics for the past summer show a smaller attendance than that of last year, there being a difference of nearly 120,000 in the total number of bathers. The houses for men that are most largely patronized are those at L Street, South Boston, and at Craigie's Bridge, and those most used by women at the Charles River Bridge and at M Street. There were 159,771 bathers in June, 430,505 in July, 358,905 in August, and 88,297 in September. The total number of men was 825,614, and of women 181,864.

Conference of Charities and Correction. — The first New England Conference of Charities will be held in Channing Church, Newton, on October 24th, 25th and 26th. Besides the general subject of charity organizations, sessions will be devoted to the discussion of "The Feeble-Minded," "Probation, in Relation to Punishment of Crime," and "Destitute, Neglected, and Morally Exposed Children."

Recent Bequests. — The will of the late Dr. Parsons, of Providence, bequeathes his medical library to the Rhode Island Medical Society, and four thousand dollars to the Rhode Island Hospital, to establish a free bed in memory of his father, Usher Parsons. The residue of the estate, after paying all of the bequests, is to go to the Rhode Island Hospital. The estate is reported as very large.

NEW YORK.

Professor von Helmholtz's Visit. — Professor von Helmholtz sailed for Germany on October 7th by the steamer *Saale*. On the evening of the 6th, he delivered an address on the ophthalmoscope at the

College of Physicians and Surgeons; after which a reception was given him at Columbia College by President and Mrs. Low. On the following night a reception was given in his honor at the Century Club. During his stay in New York Dr. Helmholtz was the guest of Dr. Herman Knapp, and an interesting episode of his visit was his meeting with Dr. Alexander Graham Bell, whose invention of the telephone was one of the results of the professor's investigations into the laws of sound.

DEATH OF DR. RICHARDS. — Dr. Thomas L. Richards, one of the young physicians who contracted small-pox from the case at the Vanderbilt Clinic which was mistaken for one of chicken-pox, died on October 1st at the Riverside Hospital on North Brothers' Island. The other physician, Dr. Norris, who had the disease in a very light form, and who, during his convalescence, rendered all the service that he could to his unfortunate comrade, was discharged from the hospital cured on the very day that Dr. Richards died.

Miscellany.

SMALL-POX IN THE "GOOD OLD DAYS."

A CORRESPONDENT sends to the *Lancet* the following curious advertisement of the last century, as a comment on the present continuance of antivaccination sentiment. The prevalence and dread of small-pox in those days is hardly to be imagined now:

"WANTED, a man between twenty and thirty years of age, to be a footman and under butler in a great family; he must be of the Church of England and have had the small-pox in the natural way. Also a woman, middle-aged, to wait upon a young lady of great fashion and fortune; the woman must be of the Church of England, have had the small-pox in the natural way, very sober, steady and well-behaved, and understand dress, getting up lace and fine linen and doing all things necessary for a young lady that goes into all public places and keeps the best company. Enquire of the printer of this paper. – Oct. 1, 1774."

BOSTON DISPENSARY.

THE statistics of this institution for the year ending September 30th are as follows:

The number of new patients treated at the Central Office is 26,405, classified as follows:

Medical Department. — Men, 2,838; women, 5,212; children, 3,647; total, 11,697.

Surgical Department. — Men, 2,311; women, 1,095; children, 824; total, 4,230.

Department for Diseases of the Skin. — Men, 875; women, 595; children, 342; total, 1,812.

Department for Diseases of the Nervous System. — Men, 649; women, 571; children, 79; total, 1,299.

Department for Diseases of the Throat and Nose. — Men, 888, women, 816; children, 540; total, 2,244.

Department for Diseases of Women. — Women, 949.

Department for Diseases of the Eye. — Men, 214; women, 206; children, 194; total, 614.

Department for Diseases of the Ear. — Men, 178; women, 194; children, 207; total, 579.

Department for Diseases of the Genito-Urinary System. — Men, 1,694; women, 45; children, 1; total, 1,740.

Department for Diseases of the Rectum. — Men, 132; women, 65; children, 5; total, 202.

Orthopedic Department. — Men, 39; women, 36; children, 51; total, 126.

Dental Department. — Men, 215; women, 263; children, 435; total, 913.

The number of visits made by patients, old and new, at the Central Office is 63,876, classified as follows: Medical, 22,346; surgical, 41,530; total, 63,876. The number of patients treated in the Districts is 16,326 (including 213 cases of midwifery) classified as follows: Men, 2,848; women, 635; children, 7,127; total, 16,326. The results of treatment in the Districts are as follows:

Discharged, cured or relieved	14,925
Removed to hospitals	1,067
Died	327
Remaining under treatment	82
	16,401
Under treatment at last annual report	75
	16,326
The number of patients treated at the Central Office and in the Districts is	42,731
The number of cases of midwifery attended during the year	213
The number of cases attended since July, 1856	7,052
Whole number of patients since October, 1,796	1.203,978
Whole number of patients since July, 1856	1,085,175
Average daily attendance at the Central Office	210
Largest number present any one day, September 25th	336
Smallest number present any one day, December 26th	42
Number of recipes put up at the Central Office during the year	68,045
Number of house recipes	52,869
Number of district recipes	15,176
Largest number put up in one day, April 10th	378
Smallest number put up in one day, December 26th	49
Number of paid recipes	62,375
Number of free recipes	5,770

The following changes in the staff have been made:

Surgeons. — Dr. Rufus E. Darrah in place of Dr. Arthur K. Stone.

Physicians. — Drs. William H. Prescott, J. J. Thomas, Augustus S. Knight, William E. Chenery, John L. Morse, in place of Drs. Dixwell, Sherman and Washburn.

Department for Diseases of the Nervous System. — Dr. Frederic Coggeshall. Assistant, Dr. William R. Woodbury in place of Drs. Bullard and Burr.

Department for Diseases of the Throat and Nose. — Dr. William S. Boardman in place of Dr. Coolidge, Jr.

Department for Diseases of the Eye. — Drs. Edward L. Parks and Frederic A. Davis in place of Drs. Hall and Jack.

Department for Diseases of the Ear. — Assistant Dr. Joseph Hicks in place of Dr. Bryant.

Department for Diseases of the Genito-Urinary System. — Dr. Charles M. Whitney in place of Dr. Tilden.

Department for Diseases of the Rectum. — Dr. Hodges resigned.

Orthopedic Department. — Dr. Frank S. Whittemore in place of Dr. Darrah.

District Physicians. — Drs. Edward A. Peace, Malcolm Stone, Benjamin Tenney, Edwin W. Dwight, Franklin G. Balch, John B. Blake, Horace D. Arnold, Frederic B. Lund, John Dane in place of Drs. Knight, Craigin, Hicks, Wentworth, Thomas, Chenery, Prescott, Whittemore and Holden.

Apothecary. — Joseph S. Lang. Assistant Apothecaries. — Wallace Maccullum, Arthur D. Macdonald.

OBITUARY. — WALTER GAY STEBBINS, M.D.

DR. WALTER G. STEBBINS died of diphtheria at the Boston City Hospital, October 8th, aged twenty-eight years. He was a son of the late Judge Stebbins and was born in Springfield, Mass. He graduated from Yale College, where he held high rank as a scholar, in 1886. After studying law for a year, he entered the Harvard Medical School in the fall of 1888, and received his degrees of A.M. and M.D. *cum laude* in 1892. He served as surgical house-officer at the Boston City Hospital for eighteen months ending last

January. In his work at the hospital he showed a good surgical judgment and scrupulous attention to the comfort of his patients, many of whom had occasion to be grateful for acts of personal generosity and kindness which he went out of his way to render. Following this service he was house-officer at the Boston Lying-in Hospital from March to September, his work being always faithful and invariably stamped with a deep impress of his individuality. After a brief vacation he returned to the City Hospital for the few weeks prior to his departure for Europe, to act as Executive-Assistant and Admitting-Physician in the absence of one of the regular staff.

He began his duties at the hospital on Tuesday noon, September 26th. On that afternoon he examined, among other cases an applicant for admission to the diphtheria ward, and on the following day, two more. Thursday evening he complained of a slight soreness of his throat. On examination nothing was to be seen but a few follicular patches on one tonsil and a general redness. Friday night a membrane had formed on that tonsil and a few follicular patches were to be seen on the other tonsil. That night a diagnosis of diphtheria was made, which was verified on microscopic examination. Early on Saturday morning September 30th, he was removed to a private room in the diphtheria ward, and vigorous treatment was begun. Sunday morning he developed an intensely septic condition, and from that time the decline was constant and progressive. His courage was unbroken, and he had faith in his recovery to the day of his death.

He was a close observer and a clear, logical thinker, deeply interested in the more serious relations of his profession. Tenacious of purpose and of great though unostentatious industry, he was singularly modest and genuine in his manner. To his friends there was a sense of something rare in his friendship, for his outward reserve and air of self-absorption was not readily broken; but when acquaintance had ripened into friendship, there was shown great depth and warmth of kindliness. A keen sense of humor and an unexpected vein of drollery made him a most charming companion. His sense of honor was fine and instant. He was conscientious, generous and self-reliant, retiring in disposition and exceedingly courteous in manner.

Correspondence.

A STATEMENT OF SOME FACTS IN REGARD TO THE ORIGIN OF THE PRACTICAL APPLICATION OF ANÆSTHESIA IN SURGERY.

BOSTON, October 2, 1893.

MR. EDITOR: — The following, my contribution to a discussion in the Oral Section of the Pan-American Medical Congress last September, I should like to have go on record in the JOURNAL, which already has published so much of value in regard to the introduction of ether as an anæsthetic. That sulphuric ether was repeatedly used as an anæsthetic by Dr. Long of Athens, Ga., in his surgical practice as early as 1840, seems indisputable from the reliable evidence collected and published by the late Dr. Marion Sims of New York, but a few years ago.

The fact that Dr. Long did not publish it to the world does not affect the priority of its use.

Next comes, about four or five years later, the experimental discovery and practical application by Dr. Wells of Hartford, Conn., of the anæsthetic properties of nitrous oxide gas.

Then come facts known to me personally, as I was "behind the scenes." About a year or more later, Dr. Morton, remembering vaguely that Dr. Wells had faith in anæsthesia by the inhalation of something, applied to Dr. Jackson with the inquiry if there was anything that could be so used. Dr. Jackson informed him that in his personal experience, sulphuric ether had relieved his suffering from the accidental breathing of chlorine gas, adding a caution in regard to its use. Dr. Morton, finding Dr. Jackson's information correct in regard to the "letheal" effects of sulphuric ether, by persuasion induced Dr. Jackson to unite with him in procuring a patent to control its use. Dr. Jackson's medical friends reminding him of the breach of ethics in getting such a patent, he withdrew from the patent. It was *then* that Dr. Morton claimed the sole discovery of ether anæsthesia, and wishing to have some other respectable backing, he went to Dr. John C. Warren, then the head of the surgical staff of the Massachusetts General Hospital, and said, in his persuasive way, that he had discovered a "compound," which he called "letheon," that would prevent pain in surgical operations, and would be pleased to show its effects on some hospital patient.

Dr. Warren consented to the trial, which proved successful; but he, with the rest of the staff, declined to adopt or endorse it unless they knew what it actually was. Of course, Dr. Morton had to tell them that it was sulphuric ether. They then began its use; and it was *their endorsement* which gave it the successful start in the surgical world, without which it is very probable it might have fallen into the list of empirical fancies.

The summing up of these facts seems like this: First, Dr. Long's successful private practice, followed after several years by Dr. Wells's success, which his diffident nature hindered him from pushing to notoriety. Then Dr. Jackson's instruction to Dr. Morton, which he followed out and brought to the notice of Dr. Warren and the surgical staff of the Massachusetts General Hospital; which staff, having eliminated its elements of quackery, tried effectually, and with their substantial endorsement gave it to the world. To that *endorsement*, it seems, is due the permanent consideration that anæsthesia has since received.

JACOB L. WILLIAMS, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 30, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	687	305	22.35	12.00	10.95	1.95	4.20
Chicago	1,438,000	476	208	25.62	8.40	13.44	4.83	4.41
Philadelphia	1,115,562	382	126	19.20	12.00	7.80	3.30	4.50
Brooklyn	978,394	330	152	16.50	11.70	9.00	.60	4.20
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	234	95	22.36	14.19	15.48	.86	3.01
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	107	42	28.83	12.09	8.37	7.44	7.44
Cincinnati	305,000	94	41	19.08	7.42	9.54	6.36	1.06
Cleveland	290,000	77	35	19.50	10.40	11.70	2.60	3.90
Pittsburg	263,709	79	43	34.29	2.54	13.97	8.89	5.08
Milwaukee	250,000	65	41	40.04	4.62	24.64	3.0	7.70
Nashville	87,754	22	8	18.20	27.30	4.55	4.55	4.55
Charleston	65,1e5	38	10	7.89	21.04	—	5.26	2.63
Portland	40,000	7	1	14.28	—	—	14.28	—
Worcester	96,217	46	19	34.72	13.02	15.19	6.51	6.51
Fall River	87,411	51	33	60.7e	3.92	56.84	1.96	1.96
Lowell	87,191	31	17	29.07	9.69	22.61	—	3.23
Cambridge	77,100	18	10	38.88	5.55	27.77	5.55	5.55
Lynn	62,656	28	10	25 00	7.14	10.71	—	3.57
Springfield	48,684	19	6	36.82	—	10.52	10.52	5.26
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	18	8	44.44	11.11	33.33	5.55	5.55
Holyoke	41,278	9	6	55.55	11.11	55.55	—	—
Salem	32,233	10	4	20.00	—	10.00	—	10.00
Brockton	32,140	8	3	—	12.50	—	—	—
Haverhill	31,396	6	0	—	—	—	—	—
Chelsea	30,264	13	3	—	7.69	—	—	—
Malden	29,394	4	2	25.00	50.00	25.00	—	—
Newton	27,556	—	—	—	—	—	—	—
Fitchburg	27,146	11	4	18.18	9.09	9.09	9.09	—
Taunton	26,972	6	1	50.00	16.66	33.33	—	16.66
Gloucester	26,688	10	6	10.00	—	—	—	—
Waltham	22,958	6	4	50.00	16.66	50.00	—	—
Quincy	19,642	4	1	—	—	—	—	—
Pittsfield	18,802	1	1	—	—	—	—	—
Everett	16,585	4	2	—	25.00	—	—	—
Northampton	16,331	4	0	25.00	25.00	25.00	—	—
Newburyport	14,073	8	2	—	12.50	—	—	—
Amesbury	10,920	3	2	66.66	—	33.33	33.33	—

Deaths reported 2,877: under five years of age 1,292; principal infectious diseases (small-pox, measles, diphtheria and croup,

diarrhœal diseases, whooping-cough, erysipelas and fevers), 680, diarrhœal diseases 362, consumption 310, acute lung diseases 219, diphtheria and croup 120, typhoid fever 91, whooping-cough 34, scarlet fever 20, cerebro-spinal meningitis 19, measles 11, small-pox 10, malarial fever 7.

From whooping-cough Chicago 9, Philadelphia 8, New York 6, Brooklyn 4, Pittsburg 3, Boston 2, Washington and Cincinnati 1 each. From scarlet fever Philadelphia and Boston 3 each, New York, Chicago, Pittsburg and Milwaukee 2 each, Brooklyn, Washington, Cincinnati, Cleveland, Lowell and Somerville 1 each. From cerebro-spinal meningitis New York and Washington 4 each, Worcester and Lynn 3 each, Chicago 2, Philadelphia, Brooklyn and Gloucester 1 each. From measles New York 8, Milwaukee, Nashville and Springfield 1 each. From small-pox New York 10. From malarial fever New York 4, Brooklyn 3.

In the thirty-three greater towns of England and Wales with an estimated population of 10,327,846, for the week ending September 23d, the death-rate was 19.7. Deaths reported 3,897; diarrhœa 394, diphtheria 116, fever 88, whooping-cough 86, scarlet fever 63, measles 21, small-pox (London and Bradford 2 each, West Ham and Birmingham 1 each) 6.

The death-rates ranged from 13.7 in Portsmouth to 30.3 in Preston; Birmingham 19.8, Bradford 18.8, Cardiff 16.5, Halifax 17.6, Leeds 24.0, Leicester 18.4, Liverpool 25.0, London 18.9, Manchester 18.9, Newcastle-on-Tyne 21.2, Sheffield 22.3, Sunderland 26.8, West Ham 18.6.

METEOROLOGICAL RECORD,

For the week ending September 30, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..24	30.17	62	70	54	75	71	73	W.	N.W.	10	3	C.	O.	
M..25	29.95	62	68	55	89	95	92	S.E	S.W.	10	12	O.	R.	.05
T..26	30.30	52	57	48	80	66	73	N.W.	S.	15	6	F.	O.	.02
W.27	30.29	54	54	47	80	84	82	N.E.	N.E.	6	8	O.	O.	
T..28	30.12	52	58	45	76	83	80	N.W.	N.	12	6	O.	C.	
F..29	30.06	48	52	43	73	85	79	N.E.	N.	12	17	F.	R.	.01
S..30	30.00	52	60	45	63	56	60	N.	N.W.	20	6	C.	O.	.02

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 30, 1893, TO OCTOBER 6, 1893.

By direction of the Secretary of War, leave of absence for three months is granted CAPTAIN WILLIAM D. CROSBY, assistant surgeon.

MAJORS ALFRED A. WOODHULL and ALFRED C. GIRARD, surgeons, are detailed as delegates to represent the Medical Department of the Army at the annual meeting of the American Public Health Association to be held at Chicago, Ill., from the 9th to the 14th of October, 1893.

MEDICAL SCHOOL OF HARVARD UNIVERSITY.

EVENING LECTURES.

The Faculty of the Harvard Medical School invite graduates in medicine to attend on Wednesday evenings, at 8 o'clock, at the Medical School, any or all of the evening lectures on special subjects which have been arranged according to the following schedule:

Prof. C. J. Blake. "Middle-ear Operations." Two lectures. October 18th, 25th.

Prof. Thomas Dwight. "The Topographical Anatomy of the Thorax and Abdomen, illustrated by frozen sections." Two lectures. November 1st, 8th.

Asst. Prof. M. H. Richardson. "The Applied Anatomy and Surgery of the Vermiform Appendix," "The Anatomy and Surgery of the Gall-Bladder," and "Abdominal Emergencies." Three lectures. November 15th, 22d, December 6th.

Prof. H. P. Bowditch. "Anthropometry and the Laws of Growth." Two lectures. December 13th, 20th.

Prof C. S. Minot. "Structure and Functions of the Uterus." Two lectures. December 27th, January 3d.

Asst. Professor Ernst. "Advances in Bacteriology." Two lectures. January 10th, 17th.

Dr. Edward Cowles. "Mental Physiology." Two lectures. January 24th, 31st.

Dr. W. F. Whitney. "The Pathology of the Fallopian Tubes, including Tubal Pregnancy." Two lectures. February 7th, 14th.

Prof. E. S. Wood. "Urinary Diagnosis." Two lectures. February 21st, 28th.

Dr. John Homans. "Ovariotomy." Two lectures. March 7th, 14th.

Dr. J. J. Putnam. "The Present Status of the Therapeutics of Nervous Diseases." Two lectures. March 21st, 28th.

Dr. P. C. Knapp. "Traumatic Nervous Affections." Two lectures. April 4th, 11th.

Dr. Myles Standish. "Functional Nervous Disturbances due to Ocular Errors." One lecture. April 18th.

Asst. Prof. T. M. Rotch. "Infant Feeding." Two lectures. April 25th, May 2d.

Prof. F. W. Draper. "A Special Medico-Legal Subject." One lecture. May 9th.

Dr. Henry Jackson. "Diseases of the Heart." Two lectures. May 16th, 23d.

SOCIETY NOTICE.

MASSACHUSETTS MEDICAL SOCIETY, SUFFOLK DISTRICT. — The Section for Clinical Medicine, Pathology and Hygiene will meet at 19 Boylston Place, on Wednesday, October 18th, at 8 o'clock.

Papers: "Malignant Endocarditis," Dr. G. M. Garland.

"A Case of Dysphagia and Dilatation of the Œsophagus with Pneumatosis," Dr. G. Liebmann.

Report of the committee appointed by the Section on Clinical Medicine of the Suffolk District Medical Society: "To Secure from the Legislature Improved Sanitary Legislation," by Dr. David W. Cheever, Chairman.

F. C. SHATTUCK, M.D., *Chairman.*
HENRY JACKSON, M.D., *Secretary.*

APPOINTMENTS.

DRS. FRANKLIN G. BALCH, JOHN B. BLAKE, JOHN DANE, EDWIN W. DWIGHT, FREDERIC B. LUND and EDWARD A. PEASE have been appointed district physicians to the Boston Dispensary.

RECENT DEATHS.

WALTER GAY STEBBINS, A.M., M.D., M.M.S.S., died at the Boston City Hospital, October 8th, aged twenty-eight years.

DR. CESARE OLIVIERI, died in Naples, September 17th, aged seventy-one years. He was one of the most conspicuous figures in the Naples school, being the director of the Pellegrini Hospital and clinical lecturer at the Incurabili. He had for some time been afflicted with a grave tracheal malady and underwent a few days ago the operation of tracheotomy at the hands of his pupil, Dr. Mottola. Everything had gone well and artificial respiration was established and maintained, without inconvenience, but in the early morning of the 17th, Dr. Mottola on approaching the bedside saw that the throat had been wrapped round and round with a towel. He addressed Dr. Olivieri, and, receiving no answer, found that he was dead, having withdrawn the canula from the throat, which he had afterwards enveloped in the manner described. On a table was a letter in which Dr. Olivieri, in despair of ever being cured of his malady and shrinking from the prospect of continued suffering, had expressed his determination to put an end to his days.

BOOKS AND PAMPHLETS RECEIVED.

Chloroma and its Relation to Leukæmia. By George Dock, M.D. Reprint. 1893.

The Bile Salts, Urea, etc., as Therapeutic Agents. By Samuel G. Dixon, M.D. Reprint. 1893.

A New Instrument for Controlling Tonsillar Hæmorrhage. By H. Hoyle Butts, M.D. Reprint. 1893.

Address on Hygiene. Delivered by Prof. Samuel G. Dixon, M.D., at the meeting of the State Medical Society, Williamsport, Pa.

Results in Ninety Cases of Pulmonary Tuberculosis Treated at the Winyah Sanitarium at Asheville, N. C., from May 1, 1891 to May 1, 1892, with a Comparison of Results Obtained With and Without the Use of Tuberculin. By Karl von Ruck, M.D., Asheville, N. C. Reprint. 1893.

Anatomy, Descriptive and Surgical. By Henry Gray, F.R.S., Lecturer on Anatomy at St. George's Hospital, London. New American, from the thirteenth enlarged and improved English edition. Edited by T. Pickering Pick, F.R.C.S., Examiner in Anatomy, Royal College of Surgeons of England. Philadelphia: Lea Brothers & Co. 1893.

Original Articles.

ISOLATING WARDS AND HOSPITALS FOR INFECTIOUS DISEASES.[1]

BY G. H. M. ROWE, M.D.,
Superintendent of the Boston City Hospital.

THE finding of the "Rosetta Stone" unlocked the secret which the ages had thrown over Egyptian hieroglyphics. The discovery of the bacillus was the key to the mystery of the cause, development and spread of infectious diseases. The impossible became possible. The pathological laboratory has demonstrated that infection is a micro-organism whose characteristics are being gradually revealed; and, what is of greater importance, it has taught us the agents for its destruction.

The physical laboratory has not exhausted the limits of the power and usefulness of electricity, nor has the pathological laboratory yet worked out the full scope of infection in its multifarious and far-reaching destructiveness.

These investigations, and the deductions from them, will make the basis of future professional treatment and the management of infectious diseases; but the economic and social bearings of the problem demand study from other points of view. Time forbids an historical or statistical review, and I proceed at once to briefly work out a few hospital equations that are paramount in the management of infectious diseases.

This audience needs not to be told that on the first appearance of an infectious disease, it should be immediately removed to a place of isolation, not only for its proper treatment, but for the protection of others. If the case appears in a home, probably an attempt will be made to isolate there, usually resulting in a separation that does not isolate. Epidemics are created by such futile attempts. Sanitary practice does not keep pace with sanitary knowledge. Not removing a person with an infectious disease to a hospital or some place securing absolute isolation, should be held as a punishable offence against society. Public health will never be assured till an enlightened popular sentiment co-operates to this end.

Every general or cottage hospital should have a suitable place to promptly isolate all cases of infection that may arise within its own walls. Infection, in this connection, includes not only eruptive fevers, but also all diseases liable to convey surgical infection. In recent years, whenever a general or well-appointed cottage hospital is built, a separate building is found among its resources for this purpose. But there are many pretentious hospitals having more than one hundred beds for general medical and surgical diseases, founded twenty years or even less, without such provision. The same is true, not only in America, but in England, even in London, owing to the original defective plan, or for want of the money necessary for the construction of such a building. There are scores of pretentious hospitals in the United States where provisions for infectious cases cannot be found outside the buildings where such cases may arise. When an infected case appears, the usual policy is to temporize by placing it in some part of the building supposed to be less exposed than the ward where the case previously was assigned. This makeshift is never satisfactory; and if other persons escape, it is usually by a happy chance. No hospital of modern construction should for a moment hazard any compromise in providing proper isolation in a building for exclusive use of infectious cases. With such a building properly equipped, and with a suitable ratio of intelligent nurses, whose hospital life is regulated by discreet and rational rules, the management of infection becomes somewhat easier. In wards having a score or less of patients suffering with a variety of infectious diseases, the regulations demand great exactness. The problem becomes yet more difficult when the wards number from forty to fifty such cases. In municipal hospitals having several hundred beds, many infectious cases, eliminated from the regular medical and surgical wards, must be provided for. This aggregates quite an array of infectious cases, in one ward for men, another for women. Besides the complication of infection, requiring the greatest skill, these wards are generally attended by the Visiting and House Staff, who are likely to have duties in other parts of the hospital. The relations of these wards to other parts of the house, in the matter of domestic service, supplies, clothing, laundry work, and the infinite number of minute adjustments, all combine to exact the most judicious and vigilant *régime*. Many cities or large towns of from 8,000 to 15,000 inhabitants have cottage hospitals, which are forced to meet the requirements of their communities. They cannot select their cases where public opinion is not yet rightly educated on such matters, and the hospital is apt to condone harmful admissions, under the delusion of keeping peace. Medical science demonstrates that public welfare makes imperative special isolating wards, not only in municipal but in cottage hospitals. This is more easily accomplished in hospitals that are private corporations, but is difficult in hospitals dependent on municipal appropriations.

There is a variety of practice about admitting to the wards connected with general hospitals such infectious diseases as scarlet fever, diphtheria, measles and the ordinary infectious diseases occasionally epidemic. But no hospital, either large or small, municipal, corporate or cottage in its organization, should receive infectious fevers into its general wards. Is it absurd to state a rule so self-evident? I have frequently seen, in this country, a case of scarlet fever or diphtheria simply removed from the other children by putting it in a room by itself — a mere pretence of isolation. I have also seen in a prominent London hospital, with a medical school attached, cases of scarlet fever and diphtheria in beds contiguous to those of patients with ordinary medical diseases. Exclude infectious diseases from all general hospitals, unless provided with separate special buildings for each disease. These wards should be absolutely isolated by distance, with separate service, both nursing and domestic; and the physicians and surgeons in charge, as well as the house staff, should have no active connection with the general wards. Every precaution should be taken to render the care and treatment, if not absolutely, yet practically, independent, so as to reduce the possibility of carrying infection to other parts of the hospital. With obvious advantages, it is far from the ideal plan. The difficulties and dilemmas of infectious-disease wards attached to a large hospital, are so numerous that the wisest policy seems to forbid it, except as a relief for

[1] Read before World's Auxiliary Congress, Chicago, (Convention of Charities and Philanthrophy, Section on Hospitals and Training Schools for Nurses,) June 13, 1893.

cases developing within its own walls. In large communities, the only system that is beyond criticism is to make for infectious diseases a separate establishment, independent and isolated. Bear in mind in this discussion that cholera, typhus fever and small-pox are excluded. Obviously, from their deadly nature, these must each be treated in a hospital specially devoted to its care, isolated in location as well as classification, although not necessarily under different boards of government. It is comparatively easy to lay down dictums indicating the best method, but pernicious conditions exist in many American cities which complicate the problem. It is a lamentable fact that the cities in this country possessing accommodations for infectious diseases among the poorer classes, to say nothing of the "well-to-do," can be counted on the fingers of one hand. To the best of my knowledge, Boston is the only large city where a hotel guest or a citizen in good circumstances can obtain suitable accommodations in a hospital if he is ill with diphtheria, scarlet fever or small-pox. In most cities the better class of corporate general hospitals absolutely refuse him admission. He is referred to the health authorities. What then? Generally the resources at their disposal are merely barracks or old buildings, diverted to hospital purposes after being abandoned as unsuitable for uses less humane. I do not forget the numerous cottage hospitals, with special isolating wards, which have sprung up within the past fifteen years in our more thrifty and enterprising towns. This indicates a growing intelligence in medical matters and the possible advance to separate buildings.

But it is in the larger municipalities where the proper accommodations are most deplorably lacking. This situation is the more humiliating, considering how many American cities and towns erect new and pretentious hospitals, at almost needless expense, on the best modern lines, while little or no progress is made towards establishing isolation hospitals for the poor, to say nothing of buildings to which the better class would resort. We recognize the superior systems employed in European capitals, especially in Germany, and also in the health districts of Great Britain, notably the urban sanitary districts.

Political methods, so rampant in municipalities, greatly affect sanitation and public health, and too often prove a stumbling-block to progress. The present rapid strides in scientific, educational and industrial affairs, and in public works, absorb so much energy and capital, that public sanitation will wait indefinitely, unless the medical profession employs Wendell Phillips' favorite weapon, "Agitate, agitate!" Optimists would fain believe that the trend of education, the truths of the laboratory, the altruistic spirit of the times, will eventually make clear to average intelligence the importance of having the proper means for stamping out the deadliest foe to public health. It is the duty of hospital workers and sanitarians not to cease forcing upon public authorities the necessity of intelligent action, until every municipality, through its public treasury, shall provide special hospitals always available for infectious diseases. Is it not the wisest policy to put such hospitals under the immediate control of the local board of health? They have so close a connection with other vital matters properly belonging to health boards, that it conduces to unity of action to have the suppression of infection under one authority — a practice that obtains in Great Britain.

But what general plan shall be pursued for special infectious disease hospitals, say, in a city of about 500,000 inhabitants, with a total requirement of perhaps 250 beds?

The first step is a site sufficiently large for liberal distribution of buildings, reasonably easy of access, and yet well isolated from sections thickly populated. In the present state of public opinion, if it is *not* easy of access, it defeats its own ends. Small-pox, like cholera and typhus, should be provided for in a hospital by itself; and the opinion of so eminent an authority as Dr. Thorne Thorne, that a small-pox hospital should not be within a mile of an inhabited house, is a wise and safe guide. As in Glasgow, small-pox might be cared for within the boundaries of an infectious disease group of buildings, but administered by itself, and having no physical contact with the rest of the establishment. Other divisions should provide for the ordinary infectious diseases, each disease having its own buildings with divisions for each sex. Each building may be absolutely separate, and yet a component part of the whole. The group should have an administration building, a domestic building, a service house containing the heating installation, laundry, mortuary, and a special home for nurses and the domestic service. Nurses should always, especially in infectious disease hospitals, be given quarters of their own in a building not occupied by patients, and of a quality to attract the class of women most desirable for hospital work.

The wards should be of moderate size, not to exceed thirty beds. The number of buildings for each disease should be sufficient to allow one building to, so to speak, "lay fallow" for renovation and disinfection. This reserve is a large factor in reducing the mortality in an infectious-disease hospital. This generous installation of site, buildings and appointments, is not always practicable, either from the topography of a city, an available site, or the financial condition of a municipality. Such establishments, we are happy to say, do exist. The Belvedere Hospital for Infectious Diseases in Glasgow, Scotland, is a most notable example. It covers thirty-one acres of land, and has thirty-five buildings with accommodations for infection usually prevalent in a large city. No better argument for insolation hospitals can be adduced than a rehearsal of the experience of the health authorities of Glasgow in changing the most unhealthy city in Great Britain, with the largest mortality, into a clean, healthful city, with a low death-rate.

A more feasible but less perfect arrangement is a site in or near the thickly-settled portions. Insure the best possible isolation by high walls and perfect administration. Provide separate administration and service buildings, give each disease and sex its own wards, and keep the ratio of beds to patients as liberal as possible. Such provisions, intelligently planned and wisely administered, will afford a powerful weapon to crush out infection. Liverpool, a city especially exposed to infection, has an admirable instance of a hospital of this class; and so eminent an authority as Mr. Henry C. Burdett, assures us, that, "on the whole, this hospital may fairly be regarded as one of the best arranged infectious hospitals yet erected. Considering the restricted site, the arrangements are most satisfactory."

The opinion is gaining ground among hospital superintendents and sanitarians that large numbers of infectious cases cannot be treated to the best advantage

under one roof without increasing the mortality-rate. This has been demonstrated in hospitals and institutions devoted to the care of sick children. The ideal way to treat a case of acute disease highly infectious, would be to have two rooms which the patient should occupy alternately for twelve hours, with proper safeguards in all the conditions of transfer. The same law of rotation, with a larger proportion of time, would be admirable for the occupancy of infectious disease wards. Many small, isolated buildings on one site yield better results than a few buildings of a larger size on a restricted site. Increased cost is an objection to this. Unfortunately, public opinion, squeamish and short-sighted in public sanitation, backed by legislators ambitious for low tax-rates, and cajoled by the always sensitive tax-payer, is an active and potent obstruction to the more intelligent methods.

Fire departments recognize that it is the first five minutes that counts; so the first case of infection is the most important one to fight. Dr. Thorne Thorne has made the most exhaustive study ever attempted on infectious disease hospitals, and he instances scores of examples to show that epidemics have been crushed by having the means to isolate the first case. He insists that such buildings should be constructed in non-epidemic times, rather than under conditions of panic, and that immediate and permanent usefulness of hospitals is impaired by hurried erection.

In conclusion, I am asked how the City of Boston ranks in the means for the suppression of infectious diseases.

Boston has possessed, since 1877, a small-pox hospital with accommodations for fifty ward patients, and six rooms for private paying patients. By the irony of fate the last private patient was a well-known Boston poet. The hospital is half a mile from the nearest habitation, located on an excellent site, well-appointed as most cottage hospitals, which it resembles in external appearance. It is to-day, and has been every day during the last sixteen years, occupied by a man and his wife, both nurses experienced in the disease, and ready at all times to receive a patient. It has its special ambulance which can always be summoned by telephone, and a reserve of portable huts and protected nurses when many cases occur. Dr. McCollom, the City Physician, confidently asserts that 150 small-pox patients can be properly provided for at forty-eight hours' notice. This, again, is a good illustration of Dr. Thorne's proposition; and the suppression of small-pox in Boston, and its very low mortality through a long series of years, is an object-lesson worth heeding.

The Boston City Hospital has 484 beds, distributed among eighteen wards, including a men's ward of ten rooms, each accommodating four cases, either of erysipelas, cellulitis, pus in any form, or any uncleanly case arising within our own walls or from outside. There is also a ward containing twelve rooms, accommodating forty-eight women, which receives similar cases, including pelvic or puerperal septic cases.

The hospital also has two other wards, one for scarlet fever and one for diphtheria, each having thirty-two beds for both free and pay patients. These are separate buildings, built in 1886, of high cost construction, and in air-supply, heating and ventilation, service rooms and special appointments, equal to the best of modern hospital wards; indeed, they are the most admirable of the hospital. In all respects they supply the same amount and quality of professional care, nursing and comforts afforded by any ward in the hospital, whether free or paying. The nursing is done by the nurses in the Training School, and the seniors of the House Staff are in turn isolated for attendance in the wards.

These wards are administered by the strictest regulations and are practically isolated; but their proximity to the general wards imperils others, and proves the correctness of my proposition that no wards designed for infectious fevers from without should be an integral part of a large general hospital. In spite of every safeguard, and after allowing for sources of infection from ward visitors and the dangers imminent to a hospital of 750 people, cases now and then do crop out that may fairly be attributed to the infectious fever wards. The labor involved in a large general hospital is always great and exacting. Ought it to be augmented by the strain of preventing the transmission of infection from special wards to the non-infectious wards?

During the last seven years, 752 cases of scarlet fever and 2,227 cases of diphtheria have been treated in these wards. It has given a wide experience of the dangers of isolation disease wards on the grounds of a large general hospital, and teaches "how not to do it."

This unhappy condition, I am glad to say, will soon be remedied. After a repeated and persistent course of education imposed by the hospital management upon the city authorities, Boston is constructing a special hospital for infectious diseases which I feel sure will be unrivalled in this country. The trustees already have $237,000 solely for this purpose. This, however, will not complete it, and $140,000 additional has been promised in the next loan bill, making $377,000 for this special purpose. Contracts have been made for $203,000, and the buildings are well under way. Time forbids a description of these buildings, but they are in the best lines of modern hospital construction, and intended for 250 patients, at a cost of about $1,500 per bed. The plans and details are the result of much study of eminent authorities, and will give Boston a strong weapon for fighting infectious diseases. For the present, it will be under the management of the Boston City Hospital, and will be administered in a manner equal, and we hope superior, to the general wards. The plans of these wards may be seen in the Boston City Hospital exhibit in the Anthropological Building.

In the May number of the *Forum*, the learned President of this Section, in an article on municipal sanitation, asks this question, "Where is the place to which a lady living in a boarding-house, or temporarily stopping at a hotel, could take her child afflicted with scarlet fever?"

In Massachusetts, the cities of Boston, Cambridge, and Newton, all possess such accommodations. Three other hospitals in New England have isolation disease wards, either under construction or projected. The isolating wards of the Boston City Hospital have private rooms for eighteen paying patients at $15.00, $20.00 and $25.00 per week. Their accommodations, treatment, nursing and general care, including diet, compare well with that usually given medical and surgical paying patients in first-class general hospitals.

Boston goes a step further. The hypothetical case of scarlet fever — and also any citizen, rich or poor — can have his clothing and all fabrics exposed to infection, taken for purification to the new and well-equipped sterilization house of the Board of Health and returned, without charge.

Hospitals are only one part of the splendid engineery

demanded for working out the extermination of infectious diseases. I cannot forbear calling attention to the collateral means. There must be efficient local boards of health, co-operating with State boards, all of which are controlled by a central national organization under the United States government. The highest intelligence of expert sanitarians would thus penetrate all communities and concentrate action on a common foe.

TRACHEOTOMY AND INTUBATION AT THE BOSTON CITY HOSPITAL.[1]

BY GEORGE W. GAY, M.D.,
Visiting Surgeon.

PREVIOUS to July 1, 1892, tracheotomy for croup had been done 514 times at the Boston City Hospital. One hundred and sixteen patients recovered (22 per cent.). Intubation has been done 502 times between December 31, 1886, and the above date. There were 91 recoveries (19 per cent.). In 58 instances both operations were performed, and only 7 recovered (12 per cent.).

A clearer statement of the facts would be as follows: primary tracheotomies 456, recoveries 110 (24 per cent.); intubations without tracheotomy 442, successful 90 (20 per cent.). This shows a difference of four per cent. in favor of the older operation.

Before the introduction of intubation 327 tracheotomies had been done and 95 recovered (29 per cent.). Since the new method came into vogue in this hospital in December, 1886, 129 primary tracheotomies have been done, with 15 recoveries (11 per cent.). During the latter period the ratio of recoveries under the various modes of treatment is as follows: intubations 20 per cent., primary tracheotomies 11 per cent., secondary tracheotomies 12 per cent.[2]

In estimating the relative value of tracheotomy and intubation it is well to have a clear understanding as to the purposes for which these operations are done; as to the definite results to be reasonably expected from them. In the great majority of cases of croup the result largely depends upon three conditions, to wit: laryngeal obstruction, bronchial croup and septicæmia. Now it is more than doubtful if either of these operations has any direct influence whatever upon the extension of the membrane, or upon the septic infection. They are done to overcome any obstruction to free and easy respiration located in the larynx, and no other direct result can reasonably be expected of either procedure. The type of the disease, more than all things else, determines the result of the treatment.

The great importance of giving relief to the laryngeal difficulty is indicated by the nature of the affection itself and also by the fact, that life is prolonged, and more time is thereby obtained in which to combat the various complications. In very many instances the operations are succesful and satisfactory, although the result of the disease is fatal. The patient succumbs to sepsis in some of its various forms or to some other complication, but has no more trouble from the dyspnœa. The operative or surgical part of the treatment was successful, in that it accomplished all that could have been expected of it, by overcoming the difficulty in breathing through the larynx.

Hence, I submit, that a more rational criterion by which to estimate the comparative merits of tracheotomy and intubation would be the amount of relief to the laryngeal dyspnœa resulting from each operation. Judged by this standard, rather than by the result of the disease, which operation gives the most satisfactory relief to the difficult and labored respiration of acute laryngeal stenosis in children?

Every one who has had much to do with tracheotomy, is familiar with the favorable change, which follows the introduction of the tube into the trachea, providing the obstruction is not too low in the air-passage. Unfortunately the respite after both operations is all too brief, but for some hours it is so striking that one needs to be on his guard as to the ultimate prognosis.

In 110 cases of the later intubations at the Boston City Hospital, a record of the immediate effect of the operation upon the dyspnœa was made, with the following results: In 75 instances the relief was immediate and complete: 22 patients were so much benefited that no further operative treatment was required. In 13 cases no relief was obtained by the laryngeal tube. In one instance membrane was pushed down in placing the tube. Immediate tracheotomy was done and the child recovered. In another favorable case it is doubtful if the tube entered the larynx at all. In several of the cases little or no relief was obtained by opening the trachea after intubation, which is not an uncommon result, except in those instances of displaced membrane.

Any method of overcoming the dyspnœa of croup, which gives sufficient relief for all practical purposes in nine cases out of ten, as indicated above, is worthy of our respect and consideration.

Does tracheal section relieve dyspnœa in those cases in which intubation fails? That is the key to our subject and a correct answer will decide the question at issue. Should membrane be pushed down by the laryngeal tube and the patient be unable to expel it, then tracheotomy may be depended upon for relief. These cases, however, are not very common and there are not many exceptions to the rule, that if intubation does not relieve the dyspnœa, little benefit need be expected from tracheotomy. It is obvious that neither operation will do much good, if the obstruction is situated below the point reached by the tracheotomy tube which does not extend enough lower than the laryngeal tube to make any difference in the result. Cases of rapid or difficult respiration due to extension of the morbid processes or to sepsis, are not benefited by any method of treatment with which I am familiar.

Secondary tracheotomy has been performed 58 times in this hospital previous to July of this year. Seven recovered (12 per cent.). It will be noticed that the results of primary and secondary tracheotomies in late years are about the same, and are due to the fact, that only the worst cases are subjected to this mode of treatment. Intubation, even if not successful, does not seem to lessen the patient's chances for relief, except in the gravest cases, when any disturbance may result in collapse. Except in those cases in which the laryngeal tube becomes occluded in its introduction, very little benefit resulted in many instances from opening the trachea, after a fair trial of intubation. It is best just to say, that the lack of skill and experience must be held responsible for some of the failures of the new

[1] Read before the Surgical Section of the New York Academy of Medicine, October 20, 1892.

[2] For the later statistics in this paper I am indebted to Dr. W. H. Prescott, formerly house-surgeon.

method in the above cases, rather than the character of the operation itself. The failures of intubation were generally due to pushing down membrane, faulty introduction of tube, or to the obstruction being situated so low that no operation could give relief. In the great majority of cases the right tube, properly placed in the larynx, will afford adequate relief to the acute symptoms of laryngeal obstruction.

The fact that 502 intubations have been done at the Boston City Hospital during the past five and a half years, and only 129 primary tracheotomies, shows pretty conclusively, that the new operation has supplanted the old one to a very considerable extent in that institution. Intubation, as a rule, is the primary operation, and only in case of failure, is the trachea opened. Considering the large number of surgeons who have charge of our diphtheria wards at different times, it is remarkable to what an extent this operation is performed. There is necessarily a personal equation in these matters, and unless a particular mode of treatment has much in its favor, it is hardly to be expected that a dozen different surgeons would resort to it year after year in preference to its old and well-established rival. Such are the facts, and the lesson is unmistakable.

Intubation is by no means a perfect method of relieving laryngeal obstruction. That is yet to be invented. But it has sufficient advantages to give it a permanent place in the treatment of this affection. It will never entirely supplant tracheotomy, as the latter possesses some desirable features which cannot be claimed for the former. The most important of these is the facility of swallowing. The dysphagia is the most serious objection to intubation. In a small number of cases it is difficult to get the patient to take sufficient food and stimulants by reason of the choking at every attempt to swallow. A good nurse possessing tact and perseverance can overcome this difficulty to a great degree, but unfortunately such a person is not always attainable. In a hospital this objection does not have that importance which appears in private practice. In a large proportion of cases, however, the difficulty is not great enough to lead one to abandon the plan of treatment.

Among other objections to the laryngeal method are the facts, that occasionally the tube is coughed up repeatedly; that it becomes occluded; that there is no expectoration; that for some reason, not always apparent, it does not relieve the dyspnœa; and, finally, that the tube can not always be introduced into the larynx. While it is true that all of these complications are met with, yet they are not sufficiently common, nor so difficult to overcome, as to lead any one, who has had a fair amount of experience, to give up the method. Tracheotomy is by no means free from complications, such as hæmorrhage, sudden blocking up of tube, shock, etc.

That any one with reasonable dexterity, who has done both operations a good many times, should consider the new one the more difficult to perform, is beyond my comprehension. One requires from five to ten minutes including the time necessary for preparation; the other from half an hour to an hour. In the new operation no anæsthetic is required; the light is of secondary importance; there is no hæmorrhage, and except in the worst cases little danger is to be apprehended from shock.

Unless one's early experience with intubation has been peculiarly favorable, he is prone to condemn the method upon insufficient evidence. Croup is not an easy disease to manage by any method known to the profession, and the new one is no exception to the rule. A fair amount of skill, perseverance and experience are requisite for a satisfactory management of these cases. From thirty to fifty examples of each operation are necessary to enable one to form an intelligent opinion of the advantages and disadvantages, the accidents and complications incident to each. Personal peculiarities will always be a factor in choosing the method of treatment. But the strongest advocates of intubation will be found among those who have had the largest experience, which is the best and safest of all teachers.

In conclusion, allow me to say, that in a majority of cases I think intubation is preferable to tracheotomy for the relief of acute laryngeal obstruction in children under seven years of age for the following reasons: It relieves dyspnœa; it is more quickly and easily done; consent of parents or guardians is more readily obtained; it will be resorted to earlier in the disease; it requires no more skill and care in the after-treatment than does tracheotomy; the tube takes care of itself; it is less likely to "gum," or to become obstructed; no anæsthetic is required; as there is no cutting, there is no hæmorrhage; it is not regarded as a surgical operation by the parents and friends; and finally, the records of the Boston City Hospital indicate, that the results are nearly as favorable, as after the other method of treatment.

Such are the reasons for the opinion expressed in this paper, and they are based upon the experience of my colleagues, and of myself, in upwards of a thousand operations. The type of the disease will vary at different times, thereby affecting the results. Accidents and complications will occur not infrequently in both plans of treatment. But after making due allowance for these facts, as well as for individual preferences and peculiarities, I venture the statement, that Dr. O'Dwyer's operation will remain in the opinion of a large number of surgeons for a long time to come, what it is at present, a reasonably safe, efficient and satisfactory method of relieving acute laryngeal stenosis in children.

Tracheotomies and Intubations at the Boston City Hospital to July 1, 1892.
(Fractions omitted.)

	No.	Recov.	Per cent.
Tracheotomies,* total	514	117	22
Intubations, total	502	97	19
Tracheotomies, primary	456	110	24
Intubations, without tracheotomy	442	90	20
December 31, 1886, to July 1, 1892.			
Intubations, total	502	97	19
Tracheotomies, total	187	22	11
Intubations, without tracheotomy	442	90	20
Tracheotomy,† primary	129	15	11
Tracheotomy, secondary	58	7	12
Tracheotomy,‡ to December 31, 1886	327	93	29

* Dr. W. H. Prescott.
† Prescott and Goldthwait: Boston Medical and Surgical Journal, December 31, 1891.
‡ Lovett and Munro: American Journal of Medical Sciences, July, 1887.

It is stated in a German paper that more than twice as many people died in London last winter from influenza as died in the same city, during the year 1843, from cholera.

RECURRENT TONSILLITIS.[1]

BY G. A. LELAND, M.D.

(Concluded from No. 15, page 374.)

THE following illustrative cases may bring out some points that have not been touched upon in the foregoing, and emphasize others:

CASE I. Miss M. G., a lady of thirty summers or thereabouts, was sent to me on the 24th of August, 1889, for an earache which had been coming on for a day or two. Examination of the ear showed no congestion or bulging, denoting inflammation or effusion into the tympanum; and I told her, therefore, that probably the pain in the ear was reflex from some other cause, very likely from the throat. On inquiry, she said that she had a little sore throat at the present time, that she had been subject to recurrent attacks of tonsillitis for four or more winters, that during every winter a slight cold would start up an attack of tonsillitis, which would last from four to six weeks, including recovery. As she was much in society, these attacks of tonsillitis interfered very much with her winter's pleasure since a slight cold taken while out of an evening meant being housed for a month or more. During these winters constant treatment with gargles, sprays and applications gave no lasting benefit. These attacks occurred also in the summer, but with less frequency; the ears were apt to feel full and to itch a good deal. Examination of the throat showed both tonsils very much enlarged, surfaces pitted with holes, through which projected the tops of the inspissated secretion filling them. The left tonsil at this visit was red and swollen, as if taking on a slight degree of inflammation. I introduced the blunt hook and tore away the partitions between several of the crypts, expelling much of their contents, and causing a little depletion by hæmorrhage, and then washed them out with Dobell's solution by means of the long-nozzled syringe. She expressed herself as immediately relieved of the earache, and continued her journey to a summer resort. As she was in transit, I was unable to do very much of an operation and was content to simply relieve the discomfort in the ear. She experienced this relief for some time, but soon after had a large swelling come on the left side of the neck, which was very painful and was accompanied with considerable fever and malaise. The resident physician at the resort could see no reason for it on examination of the throat, and had to await developments. Finally, an abscess burst, probably in the under part of the tonsil, out of sight, and the physician could not find the opening, but much blood and pus were discharged for three or four days. This produced a great deal of physical depression, and the patient was quite a long time in recuperating. On October 16th, I again examined the throat and was able to find no lesion to account for the abscess or its place of exit. Having determined to have her tonsils reduced by the method in question, I united several of the crypts at this sitting, and painted with equal parts of tincture of iodine and glycerine. She remarked that her ears felt very well until the day before, but she then began to feel the old irritation return. This operation was repeated on October 26th and November 14th, when some of the little light-colored, fibrous-feeling tips were cut off with the bistoury. By this time with these four operations, the tonsils, which at first projected perhaps half-way to the uvula, had shrunk down to the level of the pillars of the fauces. February 20 and 24, 1890, I again saw her with a very severe cold, but no trouble at all with the tonsils. On May 19th, she had a very mild attack of inflammation of the fauces and naso-pharynx from a cold which occluded the left nostril, and the tonsils were somewhat involved in the inflammation. The few crypts remaining were brought into notice by the inflammation. They were torn and cut again and a few projections removed. This was repeated on May 29th and June 3d, which last operation was for trimming up, and a few little holes were enlarged and again painted. At the end of the summer I saw her again for a slight cold which she had in the head, but she had had no symptoms of tonsillitis throughout the summer. In January of 1891, tonsillitis was very common, almost epidemic, and her right tonsil was seared a little on the 14th of the month with the galvano-cautery point in order to treat a very small point of local redness. Since that time she has had no trouble at all with her throat. I saw her about a year ago, the tonsils had disappeared behind the pillars of the fauces, and in looking at her throat one would never suspect that they had ever been enlarged. This then is the fourth winter since her tonsils were operated upon, and from being formerly laid up several times in the winter with this recurrent disease, she has had absolute immunity from it, and I have no reason to doubt that it will be permanent.

CASE II. Mr. P. J., seventeen years of age, was sent to me October 31, 1889, by the foregoing case who was a relative. On the sixth and seventh year before, he had been much troubled with attacks of tonsillitis, but they were not very severe. The tonsils were very large, especially the left one, projecting even to the uvula, the surfaces studded with the mouths of crypts, and bands of fibrous tissue reticulated over their surfaces. They interfered very much with speech, especially with singing and together with a few adenoid vegetations in the naso-pharynx, interfered also very much with breathing. Five years before he had had an acute inflammation of the left ear with rupture of the membranum tympanum and hearing was variable, sometimes much impaired, with colds. He submitted very gracefully to the operation in question, and by the last of December, after seven sittings, the tonsils had disappeared behind the pillars of the fauces, the pillars themselves had come together so as to be in their usual position, and his voice, color, flesh and general health were very much improved. In this case the parents were averse to the amputation of the tonsils with the guillotine, and were pleased to think that they could be reduced in another way which did not seem so barbarous. A letter from his mother, received last week, says: "He has gained much in flesh and color; his general health has improved; and he has had no further trouble with the throat, which formerly caused him to lose much time from his studies."

The following case is interesting because an intra-tonsillar abscess:

CASE III. Miss C., a lady in good circumstances, and of about thirty-two summers, had from a child been troubled with very severe ulcerated throats which continued till she was about twenty-seven, when they took on the added evil of abscess formation. The first attack was double, one on each side, eleven years ago. She never had more than one attack per year except

[1] Read before the Boston Society for Medical Observation, May 1, 1893.

once when the second attack occurred in January, but was much lighter than the May attack. The regular attacks occurred in May and in *every* May. Three weeks were usually required before the abscess broke, and two more before she was able to sit up a moment; and usually four months before she recovered her usual tone; and then it was time to look forward to another attack. Each attack was followed by one of acute rheumatism. I saw her about three years ago, with Dr. Bush, at the height of the attack. I was unable to reach pus with the curved bistoury; and I think I have never, before nor since, seen so much suffering in such an attack.

In the fall, after recuperation, the method of treatment under discussion was employed by me and she was seen about the usual number of times, and the tonsils shrank away very satisfactorily. The next May was to test the result. On the 31st day at noon, she appeared at my office, just twenty-three months ago, saying that the old trouble was again upon her. One small red nodule appeared in the centre of the right tonsil. It was incised, and a small amount of greenish pus exuded. She went home relieved, only to call me again at about nine o'clock for increasing pain and fever, chilliness, headache, and in general, the old symptoms. A small amount of pus showed at the site of the puncture, and the hole was enlarged. With her reluctant permission, I introduced the tip of my right digit into the mouth, and finding the incision, pushed it into the tonsil where was found a cavity whose wall felt like the inside of a rubber ball. The opening was torn very wide on withdrawing the finger. The pain was very severe, and bravely borne. She was sure she would be ill as usual the next morning, but at my call, was up and about, dusting the parlor, after a quiet, painless, restful night.

Since then she has had no tonsillar trouble, and only one slight sore throat. Her general health is much improved; she has much less rheumatism; and has noticed the better sound and flexibility of the voice, and absence of fatigue in its use. From being constantly debilitated, she is now in robust health.[2]

Case IV. Mrs. A. P., (twenty-seven, married, with several children) has had tonsillitis and an irritable sore throat (but never quinsy, so-called, or tonsillar abscess) for eleven years; never was free from a sore throat summer nor winter, always worse in winter; her voice was much affected, both for talking and singing, and singing was entirely given up on account of it; general health was much impaired and weight was only from ninety to one hundred and nine pounds, although according to her stature she ought to have weighed over one hundred and twenty; complained very much of trouble with breathing while asleep and frequently had to moisten mouth with some gargle or drink which was constantly kept by the bedside; had constant dropping down the throat and malodorous breath, but had no trouble with ears and no dyspepsia, rheumatism, nor gout; had diphtheria nine years ago and thinks throat has been aggravated very much since.

On examination, the tonsils were found to be moderately enlarged, surface perforated by crypts containing more or less cheesy, decomposing secretion; nasopharynx reddened and somewhat thick, markedly so at the lymphatic patches behind the posterior pillars. There were a few small adenoids in the vault. She submitted at the first visit, October 31, 1890, to the operation in question upon the left tonsil, and a number of pieces were removed with the forceps and bistoury. A weak solution of borax, as hot as could be borne, was ordered for gargle. She was also operated upon on the 7th, 14th and 21st of November, and a few adenoids were at the same time removed with the forceps. She did not suffer much between the visits, and having a good deal of "sand" was obliged to submit to but four operations in all. The tonsils shrank away entirely between the pillars of the fauces, and she was dismissed with the recommendation to come again should a single follicle start up to be inflamed, and give her any idea that the old symptoms were returning. I have not seen her since; but a letter dated April 26th of the current year says that she has had no symptoms of a sore throat since the treatment was finished, nor of catarrh; that she has had no odor of the breath and not a sick day since; that she can talk and sing as well as ever; and that her general health has improved, and her weight is now between one hundred and twenty-five and one hundred and thirty pounds. It is not to be expected that she will ever be troubled again.

Case V. A little girl, G. H., seven years of age, has had trouble with adenoids and tonsils since birth. At two years of age she had scarlet fever and the throat has been very sensitive and tonsils very troublesome ever since. At the first visit, December 7, 1892, she was just recovering from the fourth attack of tonsillitis during that year. There were two attacks the previous winter, one in the summer and one the first week in September, and the day before the visit she was out for the first time since another attack. This last time the tonsils were enlarged for two weeks, and painting with iron, etc., was not of much avail until eight days ago the attack culminated in an acute tonsillitis. Under the care of another practitioner she had been kept along, and the naso-pharyngeal hyperplasia had satisfactorily diminished as she advanced in age, but she has had on the average about four attacks of acute tonsillitis every year. Being so young it was thought advisable to do but little at each operation, but in this case the parents were glad to find a method which would not require tonsillectomy. She submitted to seven operations only, which were considered sufficient, for the tonsils had shrunk well away, although the surfaces were slightly nodular. She went away with the ordinary injunction as to the return of the inflammation in even a single follicle; and on February 10th (the last operation occurring on the 26th of January), on a very rainy and stormy day, I was sent for in a hurry because it was thought the tonsils had again lighted up; but at my visit I found the child playing about apparently perfectly well, with no sore throat. The parents had been frightened because she had awakened that morning a little languid, as usual in such attacks, and they had seen some redness about the fauces, and thought that my prognosis was refuted. I was very happy to assure them that, although the fauces were slightly reddened, the tonsils were not affected at all, and that there was no cause for alarm.

She has gone through this very trying spring, when sore throats have been more than usually prevalent, without another attack.

Of course, I do not consider this case as one which

[2] Since the foregoing was prepared for publication, the patient came in June 3d to say that the second May had already passed, and that she had escaped all symptoms of throat trouble, and, therefore, was entirely satisfied that the treatment had been a success.

is of as much importance as the others which have been longer finished; but I report it as one which, under the old methods of treatment, for five years at least has still had four attacks of "quinsy sore throat" every year, and which in a most trying season since operation has thus far escaped; and I am almost willing to wager she will have continued immunity from her old enemy.

It would be useless to continue to enumerate cases which have been benefited, since their relation would be believed by some and disbelieved by others, as is often the case; but these few are cited as examples of the beneficial effect of a treatment which I am persuaded is not in common use among physicians, both general and special. This method is not brought forward as the best in all cases, but in those cases where the tonsils are too small to reach with the guillotine; in those where there are but a few diseased crypts; in tonsils which perhaps are not enlarged at all, it is of the greatest value, at least in my hands. It is advocated as a very good method where, as is so often the case, the patients or their parents are much averse to the amputation of the organs; and certainly, in my experience at least, when this method is carried out to a satisfactory termination, the stump left is much better than by any other method. I do not claim any originality in bringing it forward except that perhaps these knives, which I have not seen described nor recommended before, I think are an improvement over the blunt hook of Hoffmann, which certainly gives a great deal of pain where the tonsils are toughened by fibrous hyperplasia.

Clinical Department.

CHOLECYSTOTOMY FOLLOWED BY CHOLECYSTENTEROSTOMY: A FINAL REPORT.

BY E. P. HURD, M.D., NEWBURYPORT, MASS.

In the Journal of March 28, 1893, is a preliminary report by Dr. G. W. Jones, of a case of cholecystenterostomy performed by him in Newburyport early last January. It becomes my duty as attending physician of the patient to make a final report. The poor woman unfortunately died early in April of marasmus resulting from the operation.

The first operation, cholecystotomy, performed about a year ago in the Anna Jaques Hospital, was called for by the wretched condition of the patient, who had for several years been suffering from repeated attacks of gall-stone colic, unfitting her for her work. My diagnosis of biliary lithiasis was confirmed by that first operation, eight gall-stones of variable size (and facetted) having been removed. No calculi were discovered in the common bile-duct or in the cystic duct. It was not at the time determined whether there was present any stenosis of the choledochus. The patient made a good recovery, but a biliary fistula remained, which refused to heal, though repeated attempts to close it were made by Dr. Jones and by myself. The fact that this fistula would not close, and that there was an almost daily escape of bile, and in quantities which often weakened the patient, led us to think that there must be partial stenosis of the choledochus, not *total* stenosis, for there was evidence (coloring of stools, absence of jaundice) that some bile constantly found its way into the intestine.

Miss C., in October, went to Cambridge for further medical advice, and came home early in the winter resolved on having another operation performed, which might cause the bile, then running off by the fistula, to be utilized, and might restore her to health again.

This operation is well described by Dr. Jones in the Journal article above mentioned. After the intestine (believed to be a loop of the ileum) was attached to the gall-bladder in the manner described by Dr. Jones, it was perforated, a drain made of silk-worm gut was inserted into it, and the deep wall of the gall-bladder with the intestines dropped back into place. The opening into the gall-bladder was packed lightly with gauze, and the central abdominal incision was closed and sealed with collodion.

The immediate result of the operation was favorable. For a fortnight there was no untoward symptom. Dr. Jones's report was made from data communicated by me and Miss Bement, the nurse, down to about January 25th. Then constant fæcal and biliary discharges manifested themselves. These discharges were biliary and mucous only till about the time when I took out the silk-worm gut drain, ten days after the operation, when fæcal matters and chyle began to be mingled with the discharges from the fistula; I say, *chyle*, for there was often material that seemed to be imperfectly digested food, and I was on several occasions assured that broth, milk, etc., had been voided by the fistula in almost the same condition as when swallowed. Miss Bement had seen milk appear at the fistula five minutes after being swallowed.

It was supposed at the time of the last operation that there would be no doubt about the rapid healing and firm cicatrization of the old fistula; there would now be no longer any reason why biliary, much less fæcal matter, should be discharged externally. The event was different from what we fondly expected. We had now, not only our old biliary fistula, but a fæcal fistula along with it — a fæcal fistula communicating with some part of the small intestine rather high up. An attempt was made by Dr. Jones and myself about the middle of February to close up this fistula. We cut around it till we had dissected up a funnel-shaped tube leading down to the gall-bladder; around this a stout catgut ligature was thrown, and the portion above was enclosed in a buried catgut suture bringing the freshened tegument well together. It was all of no avail; in three days the discharge had burst through the artificial coverings interposed to compel it to seek the natural channels.

From that time Miss C. went rapidly down. Appetite became *nil;* there was constant vomiting of food and drink: and it soon became necessary to stop all nourishment by mouth and to feed the patient by rectal enemata. It is seldom that a physician is compelled to witness a more painful and hopeless illness; the only relief that could be given for the distress was the subcutaneous morphine injection.

A swelling (which eventually nearly or quite subsided) formed over the right lobe of the liver which led me to fear the formation of hepatic abscess. The continued outflow by the fistula excoriated the external parts and made them very painful; this distress was only partially mitigated by absorbent powders. The obstinate vomiting of alimentary matters, of glairy mucus, the burning pain experienced along the gullet and in the stomach might have suggested acute gastritis; but we often witness the same symptoms in

ileus and volvulus. There was a dry and parched tongue and incessant thirst. The urine was scanty and high-colored and the bowels constipated, though copious stools could be elicited by glycerine injections. For a time there was a decided icteroid hue of the teguments and conjunctivæ.

There is no particular reason for dwelling further on a case which was as distressing as it was disappointing to all concerned. Miss C. lingered on, and died of inanition and starvation about the middle of March. The quantity of nourishment taken by mouth for more than six weeks was very small; and the amount actually appropriated much smaller, for very little was really retained. The poor woman was, as might be supposed, exceedingly emaciated.

In the absence of a post-mortem examination (which was denied) no entirely satisfactory analysis of the symptoms and explanation of the cause of death is possible. What I have to suggest is largely of the nature of conjecture, and will be comprised under two heads:

(1) A fæcal fistula was established between a portion of the small intestines and the abdominal wall, giving an escape externally to much excrementitious matter with more or less chyle. Unless such fistulous orifice can be closed, serious results are certain to happen, as our best surgical authorities testify. I might quote in point from Cooper, Chelius, Gross, Erichson, Druitt and others. Sir Astley Cooper, for instance, mentions the case of a man with a strangulated umbilical hernia which sloughed and occasioned an artificial anus. As he was recovering from the effects of the strangulation and sloughing, and was allowed to take food in any considerable quantity, it was observed that part of what solids he ate passed out at the artificial anus within half an hour after he had swallowed them, and that fluids passed out in ten minutes after they had been taken into the stomach. Although he took sufficient food to support a healthy person, he wasted rapidly, and died in three weeks. On examining his body after death, and tracing the jejunum, the lower part of that intestine was found entering the hernial sac, and in it the opening was situated.[1]

(2) The intestine in this operation was brought into direct communication with the gall-bladder so that the latter was in all probability constantly contaminated by fæces and microbes from the small intestine. In fact, the gall-bladder, by virtue of the operation, was converted into a diverticulum of the intestine. Hence the possibility — I may say the probability if not certainty — of infection of the liver by way of the intestine. The bile, as is known, does not flow continuously but intermittently; though undoubtedly antiseptic, it can not act when it is not present. It has seemed to me, the more I have thought of it, that by making the gall-bladder a *quasi* diverticulum of the intestine, we furnish just the best possible conditions for microbic infection of the liver. In the physiological state, the intestine, if not shut off from the mouth of the choledochus by a membranous valve, is virtually excluded from the duct by the fact that the latter opens obliquely into the digestive tube, passing through the muscular coat of the duodenum whose contractions act the part of a valve; moreover, the choledochus becomes narrowed at its mouth to such an extent that in a state of rest its lumen is virtually effaced.[2] It will be seen that the conditions are altogether different when, instead of having the intestine with its microbes and fæcal contents nearly shut off from the liver (which even then in certain morbid states cannot altogether protect itself from infection), we have the intestine in direct communication with the gall-bladder by a fistulous orifice.

I am aware that the ready reply to this argumentation will be that every operation of the kind — every cholecystenterostomy — presupposes just such direct communication between the intestine and the gall-bladder, that there are now on record some ten successful cases, and that in one successful case, that of Mayo Robson, it was the colon that was made to communicate with the gall-bladder.

No one can reply to this objection till he has ascertained the subsequent history of all the cases on record. How many of these reported cases have been complete and permanent cures?

But granting the entire success of a part if not all of the cases, from that of Winiwarter in 1881 to Mayo Robson's last operation, we can only suppose a satisfactory result possible by a process of cicatrization and healing which shall closely imitate the natural physiological condition, that is, a minute orifice of communication, and a membranous barrier or valve to oppose the passage of fæces into the gall-bladder, while permitting the flow of bile from the gall-bladder into the intestine. Possibly this result might have been attained in our case, provided we had not put in that drain of silk-worm gut, *or provided I had removed it earlier.*

But it is useless to speculate further as to the causes of failure in this unfortunate case. The operation as performed was unquestionably a brilliant one; and the untoward result, in connection with such theoretical considerations as I have indicated above, has convinced me that cholecystenterostomy must always be an eminently hazardous operation.

HISTORICAL RETROSPECT.

The first to advise the operation of cholecystenterostomy was Nussbaum in 1880, for cases of irremediable occlusion of the common bile-duct. The first to perform it on the human subject was Winiwarter, in 1881. The second operation was performed by Kappeler, six years afterwards. The operation was done at one sitting. July 6, 1887, he incised the gall-bladder and duodenum and approximated them with a suture of serous and mucous coats. There was complete recovery. Montastyrsky operated about the same time, and lost his patient. Socin, November 19, 1887, performed cholecystenterostomy in a manner similar to Kappeler, with recovery of the patient. The fifth case was that of Fritzsche, April 24, 1888. The case was one of impaction of gall-stone in the choledochus. He made an opening into the intestine and gall-bladder and united incision with catgut sutures of mucous coat and silk sutures of serous coat. Patient died on May 4th.

The sixth case was that of Mayo Robson, March 2, 1889. He joined the gall-bladder with the colon, uniting mucous and serous coats with chromicized catgut sutures. He reports a good recovery. The seventh case is that of Terrier, August 13, 1889. After incision of gall-bladder and duodenum, he approximated with two rows of sutures, put in drainage-tube, and sutured the gall-bladder to the abdominal wound. He reports a good recovery. This case strikingly resembles the Jones and Tuttle case whose unfortunate

[1] Lectures on Surgery, vol. iii.
[2] Les Infections biliaires (Dupré) Paris, 1891.

termination I have here reported. The eighth case is that of Courvoisier, March 28, 1890, who attached the gall-bladder by serous sutures to the colon, after having opened the choledochus and curetted several gall-stones out of the hepatic duct.

There are a few more cases to add — some successful, some unsuccessful. Bardenheur's two cases both terminated fatally. He united the gall-bladder to the duodenum with an elastic suture in the centre and a single row of silk sutures around it, expecting that the elastic suture would produce a pressure atrophy, and that a fistula would remain. The autopsy of both these patients showed that the result expected was not obtained. Czerny in the *Annals of Surgery*, October, 1892, reports two more cases; one died of hæmorrhage, and the other survived the operation.

July 30, 1892, Lambothe, of Belgium, operated on a patient who had an external biliary fistula following cholecystotomy. "He drew out a piece of the colon through an incision in the abdomen close to the fistula, and then applied Dupuytren's enterotrite in the manner that that author used it for the repair of an artificial anus, finally performing a plastic operation to close the external opening." The report says that "the patient survived the very tedious operative procedures." Korte, in 1891, reported to the Berlin Medical Society a case in which the suture was used for approximation; the patient recovered.

Dr. J. B. Murphy, of Chicago, whose able and exhaustive article in the *Medical Record* for December 10, 1892, will long be quoted in connection with the subject of cholecysto-intestinal operations, reports two cases of his own, performed in 1892, in which the results were favorable. He was the first to propose, in order to overcome the tremendous difficulties of the *technique* of the operation, the use of an apparatus which he calls the "anastomosis button." These buttons consist of two hemispheres which are inserted in slips or ends of the viscera to be operated on. These hemispherical bodies are held together by an invaginating cylinder. A running thread is placed around the slit in the viscus, so that when it is tied, it will draw the cut edges within the clasp of the bowel. A similar running thread is applied to the slit in the viscus into which the other half of the button is inserted, and the viscera are then brought together. Pressure atrophy at the edge of the bowel is produced by a brass ring supported by a wire spring. The opening left after the button has liberated itself is the size of the button.

This device "retains its position automatically"; the union "is effected without sutures"; it produces a pressure atrophy and adhesion of surfaces at the line of atrophy; "it insures a perfect apposition of surfaces without the danger of displacement."

The operation, as Dr. Murphy describes it, must be one of great ease and safety.

There are two points brought out in Dr. Murphy's paper which are of interest in connection with the case of my patient. The one is in relation to the effect of a permanent fistula of the gall-bladder and constant escape of bile secreted, such as frequently follows cholecystotomy. When the fistula of the gall-bladder only allows a portion of the bile to escape, the patient and animal, as in Dastre's experiments on artificial biliary fistula, can live without suffering greatly from the loss; that is, they are capable of digesting with a much smaller quantity of bile than they naturally secrete. But if we let the entire quantity of bile escape through the fistula, the patient soon succumbs.

In the case of my patient, there was a permanent biliary fistula remaining after the operation in the spring of 1892, and at times an excessive escape of bile, yet not all the bile that the liver secreted was lost (as was determined by the character of the stools) and there were, in fact, days, when there was no discharge from the fistula. I think that I am right in affirming that during all these months, this young lady, though weak and unable to work, had yet a fair digestion and did not emaciate.

The second point is this: In all the successful operations on animals that have been recorded, the establishment of a cholecystenteric fistula has been followed by more or less contraction of the orifice of communication between the gall-bladder and intestine, and the formation of a valve on the intestinal side of the opening by one or two folds of mucous membrane closing over it, permitting the bile to flow out, but preventing the entrance of any thing from the intestine. The gall-bladder also undergoes marked contraction. Murphy calls particular attention to this point. In one of his cases (a dog which had been made the subject of experimentation) the necropsy showed the gall-bladder contracted to a tube not much larger than the ductus choledochus, and a valve formed by a fold of intestinal mucous membrane. Water would flow freely from the side of the gall-bladder into the bowel, but would not flow from the bowel into the gall-bladder on account of this valve. It is not only probable, but may be regarded as certain that in all the really successful operations in the human subject a similar protective valve has been formed, and a similar contraction of the gall-bladder has taken place.

It is evident that where the gall-bladder is attached to the abdominal wall — as in my patient — the difficulties in the way of such a salutary result would be greater. Reasoning from the unsuccessful issue of this case and all the facts as stated above, I am inclined to advise surgeons after they have once done a cholecystotomy and failed, never to attempt a cholecystenterostomy. Had the primary operation in the case of Miss C. been a *cholecystenterostomy* performed according to those modern methods of technique which have given the best success, and with which my friends Jones and Tuttle are so familiar, it is quite probable that it would have been a success. But in saying this, I do not desire to be understood as attaching any blame. A cholecystomy is always the easier and safer operation, and unless the surgeon is perfectly sure that he has stenosis and occlusion of the ductus choledochus, he will naturally and rightly choose this operation in preference to a cholecystenterostomy.

I have dwelt somewhat at length on this subject for this operation has but lately acquired a right of domain in surgery; it is a formidable operation and surgeons want all the light which they can get before attempting it; and the case I have reported has its lessons.

AN advertisement recently appeared in a New York daily, offering $5,000 to any man who would submit to an experimental surgical operation involving some risk. One hundred and forty-two answers were received. Two physicians in Ecuador are the advertisers, who wish to establish a gastric fistula, and repeat the observations made by Beaumont on St. Martin.

A CASE OF CHRONIC TETANUS FOLLOWED BY SCARLET FEVER.

BY J. HOWARD CLOUD, M.D., SANDY RUN, PA.

On the afternoon of June 2, 1892, John G., age 18, presented himself in my office, complaining of stiffness of his jaw, pain in the masseter muscles, and a feeling of general muscular soreness. On examining him I found that he was unable to open his mouth farther than to admit the end of his thumb. His tongue, he stated, felt somewhat swollen. Temperature 99° F. He had vomited on the previous day, being compelled to stop work, which was in a swamp in severely hot weather. I noticed that upon the palmar aspect of the right hand near the base of the index finger, a recent scar about one inch long, and on inquiry found that three weeks before he had been cut with coal in the mines, producing a wound which had healed slowly. At present there was no pain nor discharge. Being able to swallow, I gave him a prescription containing fifteen grains of bromide of potassium and ten grains of chloral hydrate every three hours.

June 7th, I saw the case in consultation with Dr. Neale of Upper Lehigh. Patient had a temperature of 100°; pulse 90; had bitten the tongue; and from the description of the mother, he evidently had had an attack of opisthotonos during the night. He complained of severe pain in the epigastric region (the abdominal muscles being in a state of tonic spasm), increased muscular soreness and slight constipation. Urine negative. The bromide of potassium was increased to thirty grains and the chloral to twenty grains every three hours.

June 8th. Temperature 99.4°, pulse 88. Had slept well during the night, and also during the day. When awakened, felt quite refreshed, but would soon become drowsy. Had had no convulsions, but still complained of epigastric pain. Ordered one-tenth of a grain of calomel every hour, as a laxative.

June 9th. Opisthotonos twice during the night, and had bitten tongue.

June 11th. No opisthotonos, nor so much rigidity of masseter muscles. He could open his mouth far enough to admit the last phalanx of his thumb. Reduced the dose of the bromide and chloral one-half. From this time on the patient had no return of the convulsions, and the rigidity and pain in the masseter and abdominal muscles became less. Temperature ranged from 100.4° to 98.6°, and the pulse from 99 to 72.

June 26th. Walked a little with a cane.

June 29th. Felt well, with the exception of headache, but with a temperature of 103.2°, and pulse 110. Had had no evacuation from the bowels for three days, he having run out of the calomel, which had acted throughout the disease very successfully as a laxative. Gave an enema of hot soap suds.

June 30th. Temperature 102°, pulse 80.

July 1st. Temperature and pulse normal. Stopped the bromide and chloral.

July 5th. Patient progressed nicely until this date, when he developed a temperature of 105°, and a marked and typical rash of scarlet fever. There was a distinct history of contagion seven days before. The fever pursued a regular course, free from complications. Desquamation began July 11th; first in fine scales; then they increased in size, were thicker and more or less immovable, accompanied by some fissuring of the skin. Removal of the flakes disclosed a raw weeping surface beneath, soon to be covered by another set of brownish-gray fish-like scales.

Thus did the process keep on for the remainder of July and during August, September and a portion of October. Improvement first took place upon the face, which had not been so severely affected as were the trunk and extremities. Healthy skin then showed itself in the upper extremities; next upon the trunk and lower limbs; and lastly the feet became free from the scaling process.

Aside from the fact that all cases of tetanus are interesting, this one is rendered more so by its being followed so closely by scarlet fever, having such a pronounced and prolonged stage of severe desquamation, which would lead one to the conclusion that, owing to the nature of the preceding disease, with its large expenditure of nerve force to the peripheral motor nerves, the healthy action of the trophic nerves of the skin, had in some way been compromised, and the nervous system so exhausted, as to permit the scarlatinal malady to produce such excessive dermal inflammation.

Medical Progress.

REPORT ON THERAPEUTICS.

BY F. H. WILLIAMS, M.D.

THREE CASES OF ATROPINE-POISONING, ONE TREATED WITH TANNIN AND TWO WITH MORPHINE.

C. Binz [1] reports two cases of atropine poisoning and quotes others which illustrates the use of morphine as an antidote to atropine.

In the first case, which was treated with tannin, a boy, seven years old, took nearly the whole of a bottle of solution of atropine, intended for the eyes, which according to the recipe, contained .05 atropine sulphate in 10 c. c. of water. A few minutes later he lay raging on the floor, alternately screaming and laughing, in constant motion and with a flaming face. About half an hour after the atropine was taken, his physician gave him one gramme of tannin, but in spite of this the raging condition lasted for two days in undiminished violence and then it gradually decreased until on the fourth day he fell into a deep sleep and recovered.

In the second case, a boy three years old, took, between 8 and 9 A. M., a solution of atropine intended for the eyes; the exact amount taken could not be determined. About 12 o'clock he was brought into the clinic and his stomach was washed out; the patient was restless, threw himself about, uttered fearful sounds and did not recognize his father and mother. At 12.15 P. M., .003 of hydrochlorate of morphine was subcutaneously administered, but it did not bring rest. At 12.30 another injection of .005 was given and a few minutes later all appearance of disquiet had ceased and about 1 o'clock the boy was in a sound sleep. At 4 P. M. he waked up and was again excited. At 5 P. M. he took some milk with relish, but there was manifestly still much physical disturbance and .003 morphine was again injected. Quiet followed, but no sleep. At 11 P. M. he fell asleep and gradually recovered without further use of morphine.

[1] Centralblatt für klinische Medecin, No. 2, 1893.

The third case was that of a workman, fifty years old, who had suffered since 1885 with sciatica. In one of these attacks his physician, by mistake, injected subcutaneously atropine sulphate instead of morphine. A few seconds after this the patient was in a raging condition, tried to climb up the walls and thought he was pursued by animals and fearful forms. Twenty drops of .01 of morphine in 25 c. c. of water was administered every hour. In the afternoon the patient gradually became quiet and sleep followed. Except for great exhaustion during the days that followed, the patient was well and since then has had no sciatica.

Binz concludes by saying that morphine would not be suitable for every case, nor in every stage of atropine poisoning, but only in the excited stage. Choral hydrate may be used instead of morphine, but it has a more weakening effect on the heart than the latter and must be used with great care.

THE TREATMENT OF MALIGNANT TUMOR BY REPEATED INOCULATIONS OF ERYSIPELAS; WITH A REPORT OF TEN ORIGINAL CASES.

Dr. William B. Coley [2] gives in more or less detail an account of six cases of sarcoma and four of carcinoma in which he has used erysipelas inoculations. In addition to these 10 cases of his own he refers to 28 other cases of sarcoma and carcinoma in which erysipelas, either spontaneous or artificial, intervened. Of these 38 cases, erysipelas occurred accidentally in 23 and was the result of inoculation in 15 cases. Seventeen of these cases were carcinoma and there resulted three cures and one death; 17 were sarcoma and there resulted seven cures and one death; four were sarcoma or carcinoma and there were two cures.

Dr. Coley groups by themselves the 15 cases (seven carcinoma, eight sarcoma) in which erysipelas was artificially produced and states that among these there were three cures; carcinoma, 1; sarcoma, 2. He then goes on to say, "when we reflect that in nearly all these cases the tumor was not a primary growth, amenable to operative treatment, but either a recurrence after operation had been tried and failed, or from its nature inoperable, then and then only are we in a position to fully estimate the importance and value of erysipelas as a *curative* agent." The writer next considers the cause of cancer, its treatment by repeated injections of fluid cultures and the dangers associated with erysipelas, and draws the following conclusions:

(1) The curative effect of erysipelas upon malignant tumors is an established fact.

(2) The action upon sarcoma is more powerful than upon carcinoma in about the ratio of three to one.

(3) The treatment of inoperable malignant tumors by repeated inoculations of erysipelas is both practicable and not attended with great risk.

(4) The curative action is systemic and probably due chiefly to the toxic products of the streptococcus, which products may be isolated and used without producing erysipelas.

(5) This method should *not be employed indiscriminately* until further experiments have proved its limitations.

A note at the end of this article contains the following:

"*Toxic Products.* — During the past month I have been using a preparation of the toxic principles of erysipelas in four cases of inoperable sarcoma. The injections have been made into the tumor itself, and repeated every forty-eight hours. The reaction has been almost identical in character with that produced by true erysipelas, though milder in degree, and it has always passed away within twenty-four to forty-eight hours.

"The temperature has never risen above 103.5°, and has usually dropped to normal the following day. I have frequently made use of the toxic products of the *bacillus prodigiosus* in combination with the products of the erysipelas coccus, to intensify the action of the latter and always with the desired effect. (This peculiar action of the one germ upon the other, I may add, was noted by Roger in his recent experiments on rabbits.)

"Every one of my four cases of sarcoma has shown a marked and progressive decrease in the size of the tumor, and in one case (*vide* paper, Case VI) a sarcoma of the back and groin, the tumor has entirely disappeared and the injections have been stopped. The patient has regained his normal weight (one hundred and sixty-five pounds) and has returned to work.

"These results have been so encouraging that, for the present at least, I have decided to use the toxic products of erysipelas in preference to inoculating the germ itself. The advantages of doing so are very great. The necessity for isolation is avoided and the action of the products can be so carefully regulated that the danger element can be entirely eliminated."

[The erysipelas inoculations are obviously attended with danger to the patient; the toxic products should rather be chosen and the results of their further use will be awaited with great interest. F. H. W.]

OBSERVATIONS ON THE NATURE AND TREATMENT OF ANGINA PECTORIS.

Dr. J. Burney Yeo [3] after discussing the known modes of causation of attacks of angina pectoris, summarizes the indications for treatment as follows:

(1) To maintain or improve, when defective, the general nutrition; to avoid all strain, physical and emotional; and so to relieve cardiac feebleness and excessive effort.

(2) To relieve dyspeptic conditions and flatulent or fæcal distension of the stomach and intestines.

(3) To forbid the habitual consumption of agents which may exercise a toxic action on the heart, such as tea, coffee, tobacco, alcohol, etc., or that may introduce or develop toxines in the alimentary canal.

(4) To avoid and remove all gouty and other blood contaminations.

(5) To give such tonic remedies as may improve the cardiac tone and lessen existing tendency to cardio-vascular degeneration.

(6) To relieve the paroxysmal attacks by sedatives and stimulants.

(1) Under the first indication Dr. Yeo speaks of the necessity of careful attention to hygienic measures; the life of the patient must be one of complete repose of mind and body — a repose alternated with gentle exercise. Life in the open air and in a mild climate is also beneficial. The diet must be carefully looked after and sometimes be almost exclusively of milk. If the digestive powers are greatly weakened it may be necessary to have recourse to pre-digested foods or to give with the food some artificial digestive agent. The writer mentions a number of dishes that may be

[2] American Journal of Medical Sciences, May, 1893.

[3] The Practitioner, May, 1893.

easily assimilated and then goes on to say the physician should see that a sufficient quantity of water is taken, both for eliminative and assimilative purposes, a point often overlooked.

(2) The co-existence of dyspeptic states must be treated in accordance with general principles — an alkaline bitter stomachic, composed of sodium bicarbonate, nux vomica and calumba, an hour before the two principal meals, will be found valuable. Regular evacuation of the bowels of fæcal accumulations is most essential — checking as it does the formation of injurious toxines in the intestines, eliminating waste substances and relieving abdominal disturbance. Dr. Yeo here suggests various remedies as aperients.

(3) This indication is also an important one, for certain of the slighter forms of angina are no doubt dependent on, and the more serious forms may be provoked by, the habitual use of certain substances which come, in course of time, to exercise a toxic action on the heart. The action of these toxic agents is all the more subtle because they may be taken for many years without apparently producing any injurious effect. This is particularly the case with *tobacco*, the toxic effects of which on the heart are often delayed until, or even after middle age, when they will perhaps somewhat suddenly make themselves felt. The toxic and degenerating influence of alcohol falls upon different organs in different individuals; but whenever anginal symptoms arise complete abstinence from alcohol should be insisted on or its very sparing use in a very dilute form. Tea and coffee are often provocative of the slighter manifestations of cardiac pain and discomfort and they are prone to be aggravated by any emotional disturbance. All these toxic agents must be forbidden so long as any tendency to anginal attacks exists.

(4) The next indication is to remove and avoid all gouty and other blood contamination. The importance of *elimination* in the treatment of angina pectoris is universally admitted. When renal elimination is defective from the co-existence of renal degeneration, the bowels and the skin must be acted on. When the kidneys are sound, the free use of pure water, or some suitable mineral water having some slight stimulating action on the kidneys, may avoid the necessity of free purgation; but in all cases a thorough daily evacuation of the bowels should be procured and free action of the skin should be maintained by warm baths and frictions. In gouty cases, and in all cases of defective elimination, the diet should be sufficient, but careful and spare, avoiding all excess. Animal food should be taken only in great moderation and fresh vegetables and fruit carefully prepared and cooked so as to be made easy of digestion should take its place. All alcoholic stimulant should be avoided and if acceptable to the patient a few weeks of exclusive milk diet may be advantageous.

(5) Dr. Yeo considers next the medicinal treatment of these cases, and first, the appropriate treatment in the intervals — that is, of the constitutional condition underlying the paroxysmal attacks. He points out in certain cases the value of the milder preparations of iron, combined with small doses of digitalis, in other cases of the greater value of arsenic; the usefulness of strychine as a cardiac tonic, of potassium iodide when angina pectoris is associated with obvious signs of cardiac vascular degeneration and of the gouty state, etc.

(6) Those who see in the causation of the anginal paroxysm the predominating influence of vaso-motor spasm consider that the main indication for the relief of the paroxysm is to administer medicinal agents which are known to have the power of relaxing the arterioles; they therefore advocate the use of the nitrites, such as the nitrite of amyl, nitro-glycerine, and sodium nitrite. That these agents do relieve the paroxysm in many cases of angina is certain; that they do so wholly by their action as vaso-dilators is extremely doubtful. In the first place they are capable of relieving the anginal attack when there is no certain evidence of the existence of vaso-motor spasm. Dr. Douglas Powell says he has found them "far more reliable in the graver cardiac cases than in the purer vaso-motory," but it is in the latter that they should prove most efficacious if the prevailing theory of their action were true. Balfour and Grainger Stewart both believe that they act as direct analgesic agents, and that they have the power of relieving pain in other as well as in cardiac neuralgias, independently of their relaxing action on the blood-vessels; and this view Dr. Yeo adopts as the most consistent with the clinical history of the disease.

The effect of sodium nitrite is said to be more lasting than that of nitrite of amyl or nitro-glycerine. It is given in tablets of 2½ grains; one to four of these may be given for a dose. At the onset of an attack, in addition to the inhalation of the nitrite of amyl which, owing to the rapidity of its action, is the most suitable remedy to start with, some warm diffuseble stimulant may be given, such as thirty minims of sulphuric ether or a drachm of nitrous ether, with a drachm of sal-volatile or a little brandy in an ounce or two of peppermint water. Feet and hands if cold may be placed in hot water. Balfour has been disappointed in action of nitro-glycerine and prefers inhalations of nitrite of amyl; and when these fail — as they often will — he resorts unhesitatingly to chloroform inhalations; sulphuric ether may be used, but it is not rapid enough. Chloroform may be poured on a sponge in a smelling-bottle and the patient is told to breathe it through his nose as deeply as possible. "In this way relief is obtained in a few seconds, and so soon as the narcotic influence is produced the smelling-bottle drops, and with it rolls away all risk of any overdose." In severe and protracted attacks it may be necessary to have recourse to hypodermic injections of morphine.

THE RELATIVE VALUE OF THE SEVERAL SUBSTANCES RECOMMENDED AS ANTIDOTES TO PHOSPHORUS.

Dr. E. Q. Thornton in this article[4] comes to the following conclusions which are based on chemical tests together with a number of experiments on animals. Permanganate of potassium is the best antidote for phosphorus-poisoning; it must be well diluted one-half to one per cent. or vomiting will result before the chemical reaction has taken place in the stomach; it must be used before the poison has been absorbed, and given in excess, as a considerable portion of the permanganate is reduced by the organic substances of the stomach.

Sulphate of copper, whether given in excess or in the same chemical proportions required to make the change, produces violent gastro-intestinal inflammation. In the experiments of phosphorus-poisoning

[4] Therapeutic Gazette, No. 1, 1893.

made on dogs, the animals died in those cases in which sulphate of copper was used as an antidote. Dr. Thornton is of the opinion that this drug should not be used.

The animals to which hydrogen peroxide was administered after phosphorus-poisoning recovered, but suffered from exhaustion and severe gastro-enteritis. The hydrogen peroxide is too slow in oxidizing the phosphorus.

Old French oil of turpentine, which is acid in reaction, is said to form with phosphorus a cystalline sperm-aceti-like mass; the ordinary oil of turpentine does not bring about this change, and as the former cannot be obtained in the market it should cease to be considered as a practical antidote.

THYROID FEEDING IN MYXŒDEMA, CRETINISM AND PSORIASIS.

At the meeting of the British Medical Association,[5] at Newcastle, Dr. George Murray showed some cases of myxœdema, and as these were some of the earliest where thyroid feeding was used, they give an opportunity to note the effect of time in the result. Two years ago, his first case, a woman, was almost unable to walk, had lost nearly all her hair, was very deaf, her speech was nearly unintelligible, and she had very markedly the cutaneous affection characteristic of myxœdema. A glycerine extract of the gland was first injected, and the patient improved almost immediately. Later feeding with the raw gland or with a few drops of glycerine extract was substituted for the injection and improvement went on uninterruptedly. The patient can now attend to her household duties, her hair has grown again, and her speech and hearing are normal. She is extremely sensitive to the least overdose, and can only bear about five minims daily of Brady & Martin's extract; if the remedy is withdrawn she begins to get puffy and stupid again. In all Dr. Murray's cases there was not the least tendency to the establishment of a tolerance; the same dose continuing to have the same effect after a long course of treatment, and the effect of an overdose was just as apparent at whatever stage it was given.

Dr. Murray found in his experiments on monkeys, that by the removal of the thyroid gland he could produce the characteristic myxœdematous condition, and then restore them to a normal condition by supplying them with the thyroid juice of the sheep, being able to repeat the experiment at will with constant results in the same animal.

Dr. Bramwell and Dr. Thompson obtained remarkable results by the use of the thyroid gland in sporadic cretinism. One of Dr. Thompson's cases was a boy, who had a normal sister, many inches taller than himself, although several years younger. Under thyroid feeding the brother began almost immediately to grow and was still rapidly reducing the distance between his sister and himself. Dr. Murray also spoke of a cretin under his care, who grew nearly an inch in a few weeks as a result of thyroid feeding.

In the first case of myxœdema which Dr. Bramwell treated there was in the course of treatment profuse desquamation of the skin of the palms of the hands and soles of the feet. And he noticed that the same phenomena occurred in the subsequent cases submitted to the same treatment, which comprised eleven of myxœdema and three of sporadic cretinism. This effect on the skin led Dr. Bramwell to try the internal administration of the thyroid extract in psoriasis. The first case of psoriasis was of nine months' duration, and was general over the whole body. On February 4th half a thyroid gland was given, and the dose was continued daily; by the 10th there was decided improvement; on the 14th the crusts on the back were shed in large scales leaving smooth skin; by March 3d, the cure was nearly complete. On April 1st, as there was apparent arrest in improvement, the thyroid treatment was abandoned and arsenic was given, but with disastrous results. On April 11th, the thyroid treatment was resumed, fifteen minims of Brady & Martin's extract being given daily. On June 6th the patient was discharged cured.

The second case was of seven months' duration. On May 10th, five minims of thyroid extract were given. On the 15th, the dose was doubled, and on July 14th the patient was discharged cured.

The third case was of six and one-half years' duration, and notwithstanding the previous failure of all other treatment the patient was practically cured after six weeks of thyroid treatment. Dr. Bramwell has tried this treatment in several other less severe cases, with complete success except in two instances. In one of these failures the patient was an epileptic who was taking large doses of bromide during the thyroid treatment, and that may have been the cause of the failure. Dr. Bramwell has tried this treatment in a case of lupus, and considerable improvement resulted. He hopes for equally good results in cases of acute eczema.

Dr. Simons stated that he had seen a case of obstinate psoriasis improve remarkably from the administration of Pöhl's spermine. He suggested that the action of all animal extracts might be, as Pöhl thought, due to an oxidizing influence on the tissues.

ON THE USE OF SOYA BEANS IN DIABETES MELLITUS.

Dr. W. Hale White[6] describes in this article three cases of diabetes mellitus, selected at random from several in which he has used soya-bean biscuits with good effect. The first of these cases was that of a man who had been admitted to Guy's Hospital twice before for the same disorder. On the second occasion he was, on admission, passing 5,040 grains of sugar a day. After a stay of seven weeks, during which he was dieted with gluten bread and the ordinary diabetic diet, he left, passing 640 grains a day. On this occasion, his third admission, he passed during the first seventeen days of his stay at the hospital an average of 3,850 grains of sugar a day — the first two days over 11,000 a day — and the daily average quantity of urine passed was 127 fluid ounces. The patient during this time was on ordinary gluten-bread diabetic diet; four soya-bean biscuits were then added daily for six days, and the average quantity of sugar passed was 2,431 grains a day, and the daily average quantity of urine 89 fluid ounces. Then twenty soya-bean biscuits were substituted for the gluten bread, and during the following forty-three days the average quantity of sugar passed was 636 grains a day, and the daily average quantity of urine 69 fluid ounces. As the quantity of sugar passed decreased, the specific gravity of the urine fell. The patient gained two stone in weight while he was taking soya biscuit. When he was dis-

[5] Therapeutic Gazette, September 15, 1893.

[6] The Practitioner, May, 1893.

charged on this occasion, he was passing about 300 grains of sugar a day. The biscuits produced no diarrhœa nor other ill effect.

Two preparations of the soya bean are sold in England — soya bread and soya biscuits. The oil is removed from the flour from which they are made, and the writer says this may account for the fact that, so far as his experience goes, they do not produce diarrhœa, and that this is the experience of many others who have tried them. The biscuits, which are thoroughly baked and dried, are very palatable and will remain good an indefinite time; but the bread, however carefully made, will not in summer, at any rate, keep more than two or three days. Dr. White states that many patients prefer the taste of soya-bean preparations to gluten bread; they form a good substitute therefor, and it is a great advantage to be able to vary the monotonous food of patients suffering from diabetes mellitus. He also states that according to Dujardin-Beaumetz soya-bean bread contains less than three per cent. of starch or sugar, while the latter finds that the best varieties of gluten bread contain at least sixteen per cent. of starch and saccharine substances. Twenty-three soya-bean biscuits weigh six ounces, the amount of gluten bread given in the usual diabetic diet at Guy's Hospital.

Reports of Societies.

AMERICAN NEUROLOGICAL ASSOCIATION.

Nineteenth Annual Meeting, Long Branch, N. J., July 25, 26 and 27, 1893.

FIRST DAY. — TUESDAY.

THE PRESIDENT'S ADDRESS

was delivered by Dr. Henry M. Lyman, of Chicago.

After some reminiscent remarks relating to the study of nervous diseases, he called attention to their predisposing causes, and said that we must not be content with the simple recognition of disease, but must be able to classify it etiologically as well. Such is the fact with regard to rheumatism affecting the nervous system. The marked forms chiefly affecting sensation are not so commonly recognized, and are frequently ascribed to other causes. They are usually observed in elderly people of a nervous temperament and an arthritic diathesis, and differ from many other similar disorders of sensation in being transient, vagrant and of brief duration. Among these ailments is a universal prickling over the surface of the skin; sometimes it is limited to certain points where the patient experiences a sudden sharp prick, like a flea bite. This may interfere with or delay sleep. Another disorder of cutaneous sensation often affects the scalp, and is occasioned by irritation of the superficial nerves of that region. The duration of the attack rarely exceeds a single day. Closely associated with these disorders are the various transient perversions of sensation that may be felt in the Eustachian tubes, the pharynx and about the fauces. Another of the symptoms of marked rheumatism is a peculiar and disagreeable feeling in the tongue. This sometimes assumes the severity of a genuine neuralgia, and manifests a greater degree of persistence when associated with obesity, diabetes or gout than when connected with rheumatism alone. The œsophagus and fauces, and sometimes the muscles of the eye-balls, are similarly affected. These patients are also attacked by a paroxysmal cough associated with headache. The most distressing of all these forms of pain is gastralgia. The previous history and the concurrence of other rheumatic symptoms of a more stable character will, of course, add greatly to the certainty of the diagnosis.

HETEROGENEOUS PERSONALITY.

Dr. Smith Baker, of Utica, read a paper with this title. He defined heterogeneous personality as that condition in which the characteristics of ancestry are not blended into a permanent whole, and reported the case of a little girl who presented frequently recurrent attacks of functional perversions and distress which could not be satisfactorily explained except upon the inference that the dissimilar traits noticeable in her grandparents had not been blended in the personality of her mother, and so had proved to be the ground-field of the grandchild's affection. But the question arises, Is such a view of the case professional or scientific good sense?

We can never answer intelligently until the commoner facts of family life shall have been more minutely studied. Thus, such trite matters as dreams, somnambulism, the solving of problems unconsciously or subconsciously, the up-rush of facts and arguments in the act of composition and the play of genius should be investigated.

Inquiries in states of acute illness, and the study of moods and transformations of character, etc., all should receive more attention by physicians, in order that causation in cases of functional derangement may be the more accurately conceived. In doing this, assistance may be found in many instances of so-called reflex disease. Heterogeneous personality should always be looked for in the neuropathic constitution. But more particularly is this of use in considering the problems presented by neurasthenia and the sexual perversions. Not so frequently, perhaps, is the trouble owing to the commonly assumed overwork, etc., as to the unceasing warfare within between the "lower" impulse, and the "higher" determination. Students, professional men and many others whose physical abnormities or mental peculiarities, reveal the sensitive, easily impressed nature, are especially apt to be victims of the uncoalesced personality. Its bearing upon questions of marriage and parentage renders it worthy the attention of all.

Dr. Lyons, of New York, referred to the opposite sides of character as seen among the insane. An educated woman may be agreeable and lovable in her normal condition, but vicious when in the abnormal state. He knew of such a patient who would frequently apologize and do her utmost to resist the impulses to do wrong. He thought that such behavior might be due to abnormity in the development of the cerebral hemispheres or to some interference with the circulation.

Dr. Parsons, of Sing Sing, expressed the view that in persons with a tendency to evil thinking and acting, such might be overcome by suitable environment. After a time the absence of restraint permits of a continuance or permanency of the abnormal condition. This would probably account for many of these cases.

Dr. Hinsdale, of Philadelphia, spoke of two au-

thenticated cases of double consciousness. He thought that the medico-legal features of such cases, as well as those of changes in personality, were of especial interest, and should be reported and carefully analyzed.

DR. SEGUIN, of New York, believed that atavism was the more rational explanation. Blending of the characteristics of ancestors occurs normally. It was not right to confuse double consciousness of an epileptic nature with conflicts of character and personality.

DR. J. J. PUTNAM, of Boston, said that the treatment rested upon the systematic development of character. Hypnotism has taught us much in regard to this condition, and brings out in a striking manner certain phases of character. He recommended the development of the inhibitory powers.

DR. F. X. DERCUM, of Philadelphia, thought the case reported by Dr. Baker recalled the fact that there was lowered vitality at certain epochs, in women. Relationship between states of health might account for the peculiar mental variations.

DR. BAKER, in closing the discussion, referred to the various definitions of personality as being not sufficiently inclusive of the facts to be of accurate use. He urged the importance of the study of the subject, especially in its bearing not only upon the causation of actual disease, but in its relation to all our educational ideas and practices as found to-day in our school system. In this way we find means of obviating detrimental traits, and also of making dominant those more desirable and healthful.

DETENTION HOSPITALS FOR THE INSANE.

DR. MATTHEW D. FIELD, of New York, read this paper. After speaking of the wrongs inflicted upon the insane by committing them to county jails and prisons, there to mingle with tramps while awaiting the appointing of physicians to pronounce upon their mental condition, he gave a description of the reception pavilion for the insane at Bellevue Hospital, and the methods of examination and commitment by the city examiners. He declared the pavilion to be in every respect a hospital, with resident physicians and competent trained attendants. Though a plain and inexpensive building, it served its purpose very well. He advocated the establishment in all large cities of similar hospitals for the reception of those suspected of lunacy. He said that an ideal institution for this purpose would be a hospital constructed on the pavilion plan for the reception of the insane, inebriate and neurotic, with a small amphitheatre and sufficient wards for proper classification and detention for a reasonable time. A competent visiting, resident and examining staff of medical officers should be chosen, and clinical instruction regularly given. Such a hospital would secure prompt, humane and scientific treatment. The opportunity for longer observation, securing histories and examinations, would result in more complete and accurate certification. There being no need for hasty transfer to other institutions, the feeble, sick and certain selected cases, could be detained for treatment, and clinical instruction would be easily accessible to the entire medical profession.

DR. KNAPP, of Boston, said that there are no detention hospitals in Boston, and they have felt no urgent need for them under existing Massachusetts laws. A few emergency cases requiring immediate restraint are admitted to the general hospitals. Otherwise, they can be taken at once to the nearest asylum on emergency certificates. These consist of two separate certificates. A bond must be given by the superintendent or one of the physicians, to the effect that the patient is to be formally committed or released within five days. This system has proved eminently satisfactory, and has rarely been abused.

DR. MILLS, of Philadelphia, stated that the method described by Dr. Field was in vogue at the Philadelphia Hospital. There was a detention ward for isolating cases of insanity. Two physicians are assigned to examine these patients before commitment. This ward has also been used for several years for clinical instruction.

DR. PRESTON, of Baltimore, remarked that their lunacy laws were inadequate. They were endeavoring to establish a detention ward. At present insane patients are kept at police stations, as no general hospital is prepared to receive them. Their method of dealing with such cases was entirely unsatisfactory.

DR. PARSONS agreed with Dr. Field, and believed that such a ward would serve to diminish the number of improper cases sent to asylums.

DR. BAKER thought that a detention ward would prove extremely valuable for suspected cases of insanity, as found in private practice.

THE PRESIDENT said that in Chicago they have such a ward in the City Hospital, where these cases are detained until transferred. Their commitment laws are now quite satisfactory.

THE TEMPERATURE IN GENERAL PARALYSIS OF THE INSANE.

DR. FREDERICK PETERSON, of New York, read a paper with this title. He first reviewed the literature of the subject, calling attention to the statements of various authorities, that there are in general paresis extraordinary daily variations of temperature, that the average bodily temperatures are subnormal or hyperpyrexic, and that axillary asymmetry of temperature is particularly frequent. With the assistance of Dr. Langdon, the temperature of twenty-five cases from the wards of the Hudson River State Hospital for the Insane was carefully studied. Observations were made every two hours for one week in each case, and in ten cases temperatures were taken in the two axillæ simultaneously every two to four hours for a week.

He had reached the following conclusions:

(1) As regards the average bodily temperature, it corresponded with physiological norms. The statements in literature as to hyperpyrexic or subnormal averages could not be sustained.

(2) The diurnal oscillations of temperature in paretics also corresponded to physiological norms. Observations found in literature as to frequent extraordinary daily variations in such cases seemed to be absolutely erroneous.

(3) Asymmetrical axillary differences were so small that they could not be considered as abnormal, and certainly not of any diagnostic significance.

(4) When unusual variations of temperature occur in general paretics, their cause must be sought for in conditions not related to the pathological phenomena of paralytic dementia, but depending upon other thermogenic features unrecognized by the physician, or "masked" by the mental state of the patient. Thus, in Case II of his series, an increasing hyperpyrexia was noted during the second week's observations; but the pneumonia causing it was "masked" until the

fifth or sixth day, the patient dying on the sixth day. Again, in Case X, where the highest single daily oscillations was 3.4°, and the average daily oscillations for the week 2.2° F., the patient had bed-sores on the sacrum and heels, and was undoubtedly somewhat septicæmic. That the temperature might vary in the paralytic seizures of these cases, was not gainsaid, no observations having been taken in such conditions.

Dr. Gray, of New York, said that a large number of different pathological conditions are often included under the name of general paresis. He thought a number represent the terminal stages of intracranial syphilis.

Dr. Isaac Ott, of Easton, Pa., did not believe that the heat centres could be located from the symptoms of general paresis.

Dr. J. J. Putnam mentioned that he had occasionally noted oscillations of temperature in paretics.

Dr. B. Sachs, of New York, agreed with Dr. Gray as to the question of diagnosis. The results of his observations coincided with those of Dr. Peterson. He had recorded the rectal temperature. Elevations were often due to complications from gastric disturbances. The temperature was usually a little higher than in those who had no organic disease. He inquired if clinical studies of the heat centres had ever been made.

Dr. Ott, in reply, said that he knew of only two cases of pistol-shot injury to the brain associated with immediate rise of temperature.

Dr. Parsons remarked that in one of his cases the temperature was always normal.

Dr. Chas. K. Mills, of Philadelphia, regarded the manifestations of general paresis as so diverse in character that we could thus account for the different experience of various observers.

(To be continued.)

Recent Literature.

Various Forms of Hysterical or Functional Paralysis. By H. Charlton Bastian, M.A., M.D., F.R.S., F.R.C.P., etc. 8vo, pp. xi, 199, with two diagrams. Philadelphia: J. B. Lippincott Company. 1893.

One of the most difficult problems of clinical neurology is to decide whether the symptoms of some obscure affection are due merely to so-called functional conditions or are the beginnings of some insidious degeneration in the nervous centres. More than one case of disseminated sclerosis or diffuse myelitis has been regarded as "hysterical" for months, until the development of grave symptoms settled the diagnosis. These lectures, which have been reprinted from the *Lancet*, do not render a solution of such problems a simple matter, — which no one would expect — but they do throw some light upon them, and, by a more scientific and careful classification of the facts now in our possession, they put our knowlege upon a better basis, give us better methods of investigation, and thus represent a distinct advance. As the author says, "A fuller and more accurate knowledge can only be brought about by a continuous methodical investigation and record of all the minute details." The diagnosis of "hysterical" or "functional" paralysis is but a half diagnosis, and many confuse matters still more by using the two terms almost synonymously. The problems of a "regional" and "pathological" diagnosis are still untouched. In regard to pathogenesis the author confesses our limitations. A part of the cases may be attributed to vaso-motor changes, yet such a theory has as yet no distinct evidence in its favor. In other cases the vaso-motor theory seems improbable, yet the difficulties of assuming a primary limited failure of nutrition are even greater. In regard to regional diagnosis, although our knowledge is still very limited, nevertheless by a close analysis of the symptoms, and a detailed examination much may be done. The author shows that some cases are of cerebral and others of spinal origin, and he gives the characteristics of paralyses due to functional changes in the different portions of the cerebral nervous system. Where the kinæsthetic centres in the Rolandic and marginal areas are alone affected, there is a loss of muscular sense with flaccid or spastic motor paralysis. If the sensory region of the internal capsule be also involved there is hemianæsthesia; and if the capsule alone be affected there is no paralysis, but a loss of muscular sense. If the efferent fibres from the kinæsthetic centres be affected there is paralysis without loss of muscular sense. In the spinal cases, if the pyramids be affected there is spastic paralysis without distinct loss of muscular sense, and no cerebral symptoms. If the anterior cornua be affected there is a flaccid paralysis. He therefore thinks that functional paralyses differ in degree and not in kind from those due to organic change, and he holds that the symptoms once thought distinguishing, such as muscular atrophy, bed-sores, incontinence, nystagmus, etc., are not infallible guides. Unfortunately he apparently does not follow his reasoning to its logical conclusion and accept fully the teachings of recent investigations. His study, however, paves the way to the thesis that must finally be accepted, that there is no "functional" disease, but that every morbid condition is due to some change in the structure of cell or fibre.

To the lectures is added the essay on the muscular sense, published in *Brain* some years ago, in which the author's well-known views as to the kinæsthetic nature of the Rolandic region are maintained, an essay on attention and volition, and a note on the sensory centres for touch and common sensibility.

Manual of Chemistry. A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Text-Book specially adapted for Students of Medicine and Pharmacy. By W. Simon, Ph.D., M.D., Professor of Chemistry and Toxicology in the College of Physicians and Surgeons; Professor of Chemistry and Analytical Chemistry in the Maryland College of Pharmacy, Baltimore, Md. Fourth edition, thoroughly revised. Philadelphia: Lea Brothers & Co. 1893.

The present edition of this manual has been thoroughly revised, and contains some additions. The sections on qualitative analysis and physiological chemistry are still incomplete, though they will doubtless be of service to the student if supplemented by lectures and demonstrations. These branches of chemistry should not, in our opinion, be given a place in a book which is substantially a text-book of descriptive chemistry. As a whole, however, the book before us is one of the best of the numerous works on chemistry which have been prepared specially for the use of the medical student.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, OCTOBER 19, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

"GREATER LOVE HATH NO MAN THAN THIS."

THE Greeks made their gods simply themselves with all their potentialities glorified into certitudes, as if to demonstrate what a Greek could be at his finest and best. The hero was merged into the god. The world has ever been quick to recognize valor, delights in brave exploits, exults in signal instances of moral courage, and makes haste to raise monuments to its heroes. Humanity loves to see itself at its best. Our rich inheritance from the ages in stories of daring on the battle-field, or heroism on the quarter-deck, has, perhaps, blinded our eyes to the silent, single-handed combats where there is no enthusiasm of numbers, no excitement of banners and drums, no shout of victory. And perhaps among the glorious company of heroes unchronicled and martyrs unsung, no profession holds so large a place as that of medicine.

The physician knows that a foe as deadly as a bullet and far more insidious lurks in the micro-organism. But undaunted, high-hearted, strong in his professional loyalty, he takes the risk which personal contact involves, with no thought but wresting his patient from the grasp of death. But the world too often fails to see that thus the doctor merges into the hero.

Every physician knows many instances where his professional comrades have fallen by his side, struck down by infectious fevers or septic absorption received at the bedside of a patient. Notable instances have recently brought this peril afresh to our minds. A contemporary journal, in the last issue, records the death of a practising physician who caught the infection of yellow fever from a patient whom he was attending, and also the death of a promising young doctor to whom the infection of typhoid fever was communicated from a child patient at the New York Hospital. Last week it was our melancholy duty to report the death of a brilliant young physician of unusual qualities of mind and heart, who caught diphtheria from a patient at the Boston City Hospital.

On another page of this week's issue will be found the resolutions passed by the Visiting Staff of the hospital upon his death. In another editorial column of this week's issue also are references to several deaths from disease contracted in the discharge of duty among medical officers in the Marine-Hospital Service.

It will be observed that the personal risk is greatest to the hospital physician, not only on account of the large number of patients and variety of diseases which come under his care, but because the most malignant and extreme cases are naturally aggregated within hospital walls. It must be remembered that the physician and surgeon runs his greatest risk in that part of his calling where his skill and services are bestowed gratuitously.

Every call for medical aid in great epidemics has always brought a swift response of willing hearts and ready hands. Physicians have set aside all personal comfort and gone to the unpleasant surroundings of loathsome disease, doing not only the work of nurse but even of household drudge, because all others had fled in terror from the dead and dying. Self-sacrifice is, after all, the real essence of heroism. The great scourges, formerly regarded as dispensations of Divine wrath, but now known to be results of sanitary pollution, are yet full of imminent peril to the practitioner. The very scientific knowledge which helps him more intelligently to combat disease has also revealed the extreme subtlety of his invisible foe, and made clearer his hazardous calling. But increase of knowledge brings no shrinking to the physician. He puts fear under his feet and walks serenely on in the path of his self-appointed duty. Carlyle says of the hero, "Now and always, the completeness of his victory over fear will determine how much of a man he is."

To the unthinking, the surgeon at the operating table or the physician in the wards for infectious diseases is only a man pursuing his profession. But under the impassive exterior will be found "the stuff of which martyrs are made." He holds his life none to precious to be sacrificed, if need be, in relieving humanity's physical suffering, and surely "greater love hath no man than this, that a man lay down his life for his friend."

ANNUAL REPORT OF THE MARINE-HOSPITAL SERVICE.

THE annual report of the Supervising Surgeon-General of the Marine-Hospital Service of the United States for the fiscal year ending June 30, 1892, is the nineteenth annual report, though it covers the ninety-third year of the service. It also contains mention of many matters outside of the statistical reports of the hospital service which have occurred up to November 30, 1892.

Certain facts in regard to the composition of the service which occupy the first pages of the report are not only very interesting but also of great value as indicative of the character of the men upon whom the grave responsibilities of the service are placed.

During the year two boards convened for the examination of applicants for admission to the medical corps. Fifty-seven applied for permission to appear before the boards; twenty-seven actually presented themselves; and seven only were successful in passing the examinations.

The death of one of the most respected officers of the corps gives occasion for an appreciative notice of the man and also for a general notice of the liability to casualties in the service. Two of the medical officers are suffering from tuberculosis contracted, in one case, "undoubtedly in the performance of his hospital work," and, in the other, "hastened in its progress doubtless by the exposure and severe duty imposed upon him as officer in command of the Delaware Breakwater Quarantine." At least two officers have contracted small-pox, and quite a number have suffered in other ways.

Four different officers have died of yellow fever since 1878. A most pathetic letter from the wife of one of these officers draws attention to the fact that absolutely no provision is made for the families of those who fall in this service. The surgeon-general believes that upon fair representation at least some such provision might be made as has already been made for the benefit of officers and men of the Life-Saving Service, where a man's family, in the event of his death at his post, receives an amount equal to a full salary for two years.

Naturally, cholera occupies a very large share of the report; and the subject is treated in an interesting manner, giving a short history of the present epidemic and the documentary history of the efforts of the general government to control the importation of the disease; yellow fever and small-pox have also demanded attention, and are the subjects of some interesting documents.

It has been the custom for many years to append to the reports of the service, reports on interesting cases and operations, and also reports of fatal cases with the necropsies. These reports are growing in interest and value from year to year; and it is to be hoped that their possible value will be so fully recognized that greater care may be bestowed upon them.

As to the operations of the service in connection with the treatment of sailors of the merchant marine, the report shows that the total number of men treated was 53,610. The total number treated in hospital was 16,022. There were 479 deaths, and the amount expended was $512,657.18.

ACTION OF IODOFORM ON PUS MICROBES AND ON THE LEUCOCYTES.

Maurel, who is well known by his researches on the leucocytes, has undertaken to solve the problem, why iodoform, which is so efficacious in preventing or suppressing suppuration, should apparently have so little action on the pyogenic staphylococci.[1]

[1] Bulletin Général de Thérapeutique.

He first experimented with a virulent culture (on gélose) of staphylococci in the presence of leucocytes. The latter speedily absorbed the staphylococci, but succumbed in less than two hours. In the control field, however, they accomplish their evolution and live from twelve to twenty-four hours. Maurel finds that the death of the leucocytes under the influence of the pus micro-organisms is due to a toxine contained in the bodies of these microbes, not to the mechanical action of the staphylococcus or to the products which the latter yields up to its environment. Under the influence of these same staphylococci, the red corpuscles become diffluent in fifteen hours, then disappear.

Another series of experiments were made by subjecting the figured elements of the blood to the action of iodoform in the dosage of 0.10 to 2.50 per kilogramme of blood. Neither the smaller nor the larger doses were found to be toxic to the leucocytes; the vital activity of these latter was, on the contrary, augmented, and the action on the red globules was *nil*.

A third series of experiments showed iodoform to be without marked action on cultures of the staphylococcus aureus and albus.

In a fourth series of researches, Maurel subjected both the leucocytes of human blood and cultures of the staphylococcus to the action of iodoform in varying proportions and under varying conditions. His conclusions are as follows:

(1) Iodoform attenuates the virulence of the staphylococcus. While in the virulent state, this micrococcus kills our leucocytes in less than two hours — when it is subjected along with the leucocytes to the influence of iodoform, the latter preserve their movements for eight hours, at least, and even complete their evolution.

(2) The staphylococci which have thus lost a great part of their virulence (and to such a degree that they are seemingly devoured by the leucocytes with impunity), keep all their reproductive energy unimpaired, so that virulence and the power of reproduction are independent properties.

A final conclusion is deduced that it is in both these ways — by augmenting the energy of the leucocytes and attenuating the virulence of the pus microbes — that iodoform opposes suppuration, which is, in the language of bacteriology, a massive slaughtering of the leucocytes. These teachings are in harmony with clinical experience as to the benefits of iodoform in preventing or arresting suppuration.

MEDICAL NOTES.

Mütter Lectures. — The Mütter Lectures this year will be given by De Forest Willard, M.D., at the Hall of the College of Physicians in Philadelphia on Tuesday evenings from October 17th to December 19th. The subject is "The Surgical Pathology and Surgery of the Spinal Cord, the Vertebræ and Peripheral Nerves."

YELLOW FEVER. — The conditions at Brunswick and Jessup remain about the same, there being from twenty to thirty new cases of yellow fever each day with one to three deaths daily.

A WEEK ON CATARACT. — The Philadelphia Polyclinic offers physicians a course on cataract for the week commencing October 30th.

A CONTRIBUTION TO THE HISTORY OF ANÆSTHESIA. — In the *Virginia Medical Monthly* for October, Dr. Luther B. Grandby of Atlanta, Ga., has an interesting article on the history of the discovery of modern surgical anæsthesia, which contains some new data relative to the work of Dr. Crawford W. Long.

CHOLERA RIOTS IN HAMBURG. — Several fatal riots have occurred in Hamburg this month growing out of attempts by the authorities to enforce sanitary regulations. They occurred in the suburbs among the poorest and dirtiest classes whose natural abhorrence of cleanliness allowed no extra sanitary measures to be enforced. The health officers, who were accompanied by the police, were surrounded by the crowd who attacked them with clubs and stones. In the last riot two officers were killed and their bodies trampled almost beyond recognition. A company of troops with fixed bayonets finally dispersed the mob. This opposition to the improved sanitation and the flaw in the filtering beds by which the Elbe water was mingled with that already filtered have accounted for the slight increase in the number of cases.

A LARGE OVARIAN CYST. — A case is reported by Dayot, in the *Archives Provinciales de Chirurgie*, of a young girl operated for an ovarian cyst of which she had been aware for three years. Fifteen litres of ascetic fluid were removed and the tumor which contained sixty-five litres weighed all told ninety kilogrammes while the patient weighed but thirty. There were numerous parietal adhesions, but fortunately none to the viscera.

BOSTON AND NEW ENGLAND.

WARNING AGAINST SWINDLERS. — For a few days past, two young men who claim to be connected with the staffs of two Boston newspapers, have been soliciting aid from the business men of the city for a free bed for newspaper men at the Massachusetts General Hospital. No one has been authorized to solicit such a subscription, and the men are unknown to Boston newspaper workers.

BEQUESTS. — The will of the late Mrs. Anne Sweetser, of Boston, bequeaths a thousand dollars each to the Free Hospital for Women and the Massachusetts Eye and Ear Infirmary, and names the Massachusetts General Hospital as one of five residuary legatees.

THE MASSACHUSETTS SCHOOL FOR FEEBLE-MINDED YOUTH. — At the annual meeting of the corporation of the Massachusetts School for Feeble-Minded Youth, last week, the following officers were elected for the ensuing year: President, Dr. Samuel Eliot, Boston. Vice-President, John Cummings, Woburn. Secretary, Col. W. W. Swan, Brookline. Treasurer, Richard C. Humphrey, Boston. Trustees: John F. Andrew, of Boston; Samuel Hoar, Concord; E. C. Clark, Boston; Dr. George G. Tarbell, Boston; John Cummings, Woburn; Samuel Eliot, Boston. The annual report shows an increase in the number of inmates during the year, the present number being 420.

NEW YORK.

CHOLERA AT NEW YORK. — The outbreak of cholera on board the steamer *Russia* which arrived in New York October 9th from Hamburg with two cases of cholera on board, there having been five deaths on the voyage, happily proved of short duration, and while one passenger died after her arrival at quarantine, no new cases developed.

A DIPLOMA DEALER SENTENCED. — Dr. Walter May Rew of New York, whose bogus medical college was exposed last July, was sentenced October 10th to three months' imprisonment in the penitentiary.

Miscellany.

WALTER GAY STEBBINS, M.D.

THE Members of the Medical and Surgical Staff of the Boston City Hospital desire to place upon record and also to extend to the relatives and friends their high appreciation of the character and attainments of the late Dr. Walter Gay Stebbins.

As a student he was zealous, thorough and painstaking; as an officer in the hospital he was faithful, efficient and trustworthy; and as a man he was respected and esteemed by all for his many estimable qualities.

The death of Dr. Stebbins at the beginning of his career so bright in the prospects for the future, seems peculiarly sad, from the fact that the fatal illness was probably contracted while doing temporary duty in that department in which he had, at a previous period, served the hospital faithfully for several weeks without falling a victim to the dread disease.

The members of the Staff hereby express their deep sense of the great loss sustained by this hospital, by the profession and by the community, in the untimely death of their late associate, and they beg to extend their warmest sympathy to the family and friends of the deceased.

GEORGE W. GAY,
JOHN G. BLAKE,
A. L. MASON, } *Committee.*

At a meeting of the Staff of the hospital the above resolutions were adopted; and it was voted to send a copy to the mother of Dr. Stebbins and to the *Medical Journal*, and that they be spread upon the records.

EDWARD J. FORSTER,
Secretary of the Visiting Staff.

BOSTON, October 13, 1893.

MASSACHUSETTS MEDICAL SOCIETY.

COUNCILLORS' MEETING.

A STATED meeting was held at the Medical Library, Boston, on Wednesday, October 4, 1893. The meeting was called to order at 11 A. M., the President, Dr. James C. White, in the chair. Ninety councillors were present.

The following were appointed delegates to other State Medical Societies:

Vermont. — Drs. W. S. Birge, of Provincetown; O. J. Brown, of North Adams.

New York. — Drs. W. H. Pierce, of Greenfield; C. F. Withington, of Roxbury.

New York State Medical Association. — Drs. J. M. Harlow, of Woburn; Geo. B. Shattuck, of Boston.

Seventy-fifth Anniversary of Medical Society of the District of Columbia. — Dr. H. P. Walcott, of Cambridge.

The Committee on Publications, to whom was referred at the last meeting the question of the advisableness of the continuance of the purchase and distribution of "Braithwaite's Retrospect" to the Fellows of the Society, reported that the majority of replies received to a circular asking whether the Fellows would prefer to receive "Braithwaite" as at present, or to give it up and have the annual assessment reduced to $4.00, indicated that they would prefer the latter arrangement. The committee recommended the passage of the following resolutions:

(1) That the subscription to, and distribution of, "Braithwaite's Retrospect" be discontinued as soon as practicable, and that the librarian take the necessary steps to carry out this vote.

(2) That action on the question of the annual assessment be postponed to the next meeting of the council.

After prolonged discussion the resolutions offered by the committee were adopted.

ATROPHY OF THE OPTIC NERVE FOLLOWING IODOFORM POISONING.

Valude[1] has reported to the Ophthalmological Society the case of a boy who had suffered extensive burns which were being dressed with iodoform. Symptoms of poisoning occurred, with vomiting, all of which ceased upon omitting the iodoform from the dressings. Simultaneously with the vomiting, complete amaurosis occurred, which had persisted for a year, and was accompanied by complete atrophy of both optic nerves. The question whether the amaurosis resulted from the burns or the iodoform was decided by the observer in favor of the iodoform, on the basis of its close association with the other symptoms of poisoning and the well-known cerebral disturbances caused by iodoform.

THE PROGRESS OF PSYCHOLOGY.

Professor Cattell, of Columbia College, in reviewing the progress of psychological knowledge, in an article in the *Popular Science Monthly*, speaks most encouragingly of the future possibilities of the laboratory study of this science. The old-time methods of speculative psychology are past. Psychologies are now written which do not range at large through metaphysics, logic, ethics and æsthetics. Gradually the true differentiation of this science and its proper correlation to other studies is being appreciated. It is recognized to be a kindred and equal division of philosophy with physics, physiology or chemistry, and not a subordinate addendum to any one; and this recognition has resulted in the attempt to apply the methods and measurement of exact science to the study of the mind.

The backwardness of psychology is not surprising. Certain material needs must be satisfied before there is time for self-observation; and the elements of physical science are not only more necessary to life than knowledge of the mind, they are also more easily obtained. It is natural, therefore, that as biology is more backward than physics, so psychology is more backward than biology. It is this very backwardness of psychology which accounts for its close connection until very recently with philosophy, which, as knowledge increased and a division of scientific labor became necessary, has been obliged gradually to yield one science after another a separate field. "Philosophy is not the arithmetical sum of the special sciences, but has a peculiar task — to investigate the conditions of knowledge and to form a theory of the ultimate nature and meaning of things. Psychology is no more concerned with these matters than is physics; its subject-matter corresponds exactly to that of any other natural science; and as a natural science, it need not, and should not concern itself with the origin, destiny and meaning of mind, but wholly with the phenomena of mental activity."

For this reason it is important to realize what should not be done in laboratories of psychology. They are not intended for the study of physiology. The functions of the nervous system may throw light on the workings of the mind, but the debt is reciprocal. The commonly used term physiological psychology is awkward. There is a science of physiology and a science of psychology, and there are relations between body and mind. But these relations are wider than this — they are between matter and mind. The world is one world, and all science is interdependent; but the development of psychology has drawn a sharper line between mental and physical processes than was ever recognized before, and psychology can never be made a branch of physiology.

As to the practical application and value of psychological knowledge to daily life, there is in the proper conduct of a laboratory much to be hoped for. As the result of such useful application, he hopes to see more rational progress made in methods of education, that the poor children may no longer "contribute to the progress of educational methods somewhat as the frog contributes to the progress of physiology. In our laboratories of psychology we can test the senses and faculties of children. We can determine whether the course of study is developing or stunting fundamental characteristics, such as accuracy of perception, quickness of thought, memory, reasoning, etc. We can learn what methods best strengthen each of these faculties without injuring the others. The overtasked teacher finds a child slow, and places it with more backward children, which increases its slowness. A more exact test of the child's mind may show that it is indeed slow, but that the slowness is more than counterbalanced by intensity and range. Methods must be applied which will shorten the time of thought, and will not interfere with its force and extent. We can determine what size and composition of class, what length of lesson, session and term are most favorable. We can learn whether it is better for the student to do a thing, to see it, to hear it, or to read about it. We can never build a road to learning which need not be travelled by the student, but we can build a royal road in the sense that it is the shortest and best of roads.

[1] Le Bulletin Médical, 1883, 31.

Above all, our tests and measurements will demonstrate the value of learning itself, and tell us whether under given circumstances it is secured by the development or sacrifice of more essential qualities, such as health of body, serenity of mind, common-sense, honesty and kindliness."

Similarly we may make direct application of psychological tests in medicine or in the solution of many of the subtle sociological questions of the day. "Indeed, the measurements and statistics of psychology, which at first sight may seem remote from common interests, may in the end become the most important factor in the progress of society."

THE MEDICAL ASPECT OF DISEASED TEETH.

ONE of the distinguishing marks of advancing social position is the amount of care bestowed upon the teeth. The attention paid to personal cleanliness marks a general class only, the finer degrees of which are often determined by the especial care of the oral cavity. Aside from the æsthetic reasons for dental cleanliness, and the avoidance of unnecessary pain, which also is a mark of advancing civilization, our present knowledge of bacteriology offers the most cogent arguments for greater care of the teeth. Local caries of the jaw or empyema of the antrum of Highmore are, perhaps, the most serious result which most physicians have in mind in their daily routine. The more accurate searching for ultimate causes of disease has shown the wide-spread and often subtle influence which a neglected mouth may exert. Hipple calls attention to these various results in a recent number of the New York *Medical Journal*. He has found no less than forty fatal cases of pyæmia, acute and chronic, which were directly traceable to a carious tooth.

The anatomical paths of entrance for pathogenic organisms from the teeth are numerous and direct both to the general economy and locally to the brain. An interesting and unusual case was one of fatal actinomycosis in which the autopsy revealed an actinomycotic cavern in the anterior portion of the superior lobe of the left lung, in which was an irregular calcareous body about the size of a No. 6 shot. On microscopic examination this proved to be a small fragment of dentine surrounded by phosphate and carbonate of lime, incorporated with which were numerous threads of the ray fungus. There seemed to be no doubt that the fragment was the carrier of the infection.

He calls especial attention to the importance of buccal cleanliness in cases of gastric disturbance, and speaks of the almost entire futility of sterilizing articles of diet for patients in whose mouth chronic abscesses exist, or whose teeth are covered with tartar mixed with mucus and food in a state of decomposition.

The numerous nervous reflexes — ocular, aural and neuralgic — are easily explained but also easily not associated with their true cause. It is, however, the importance of bacterial infection which should be emphasized. As far back as 1802 Dr. Rush wrote: "I cannot help thinking that our success in the treatment of all chronic diseases would be much promoted by directing our inquiries into the state of the teeth of sick people, and by advising their extraction in every case in which they are diseased. It is not necessary that they should be attended with pain to produce disease, for splinters, tumors, and other irritants often bring on disease and death when they give no pain and are unsuspected as the cause of them."

A PROTEST AGAINST THE OPIUM COMMISSION.

THE British Indian Medical Association has presented a petition protesting against the opium commission appointed with a view to prevent the production of opium in India. They say that the ryots cultivating poppies are more contented and better off than those who cultivate food grains; that many provinces are dependent for their support upon this industry, as the land otherwise cultivated could not be made to yield sufficient returns; that the opium is not used in India to cause intoxication, the greater part being exported; that the natives who do use the drug habitually are dependent upon some form of mild stimulant, owing to the swampy nature of much of the land they work in; that even used to excess the results are less harmful than those of alcohol, which would be the natural substitute for it, and the increased consumption of which would in all reason result in a greater proportion of crime; that the moral effect upon China would not be forthcoming, as the production of opium in China is already conducted on such a scale that to prohibit the export of opium to China would have but two results as regards China — the first, to give to the Chinese opium-growers the most complete protection against foreign competition, and the second, to force those opium-eaters who can afford to pay the higher price which Indian opium commands to consume the inferior product of native manufacturers; that the misery, distress and discontent, that would be caused all over the country by the prohibition of opium, would be rendered intolerable by the increased taxation, which would be necessary to enable the government of the country to be carried on after surrendering the opium revenue.

THE INCREASING PREVALENCE OF THE ITCH.

ABOUT five years ago Dr. J. C. White[1] called attention to the increasing frequency of scabies in this city, both in hospital and private practice. Its increase among the fairly well-to-do classes, as well as among the foreign population, seemed to some extent out of ratio with the increase in immigration to Boston during the years under discussion, namely, 1869 to 1888.

A similar and still progressing frequency has been noted elsewhere; and Stelwagon publishes the results of his observations in Philadelphia during the last twelve years. He finds that in the various skin clinics with which he has been connected the itch now constitutes from ten to fifteen per cent. of all cases. His figures are taken from the Skin Services of the Philadelphia Dispensary, the Northern Dispensary and the University, Philadelphia, Howard and Jefferson Hospitals. In 1880 the number of patients seen was 657, with 11 cases of scabies. In 1891 there were 1,794 patients and 260 cases of scabies, an increase of from 1.67 per cent. to 14.49 per cent. In 1892 there were but 1,339 patients under his observation, 13.52 per cent. of them having scabies.

[1] Boston Medical and Surgical Journal, February 14, 1889.

He did not find the disease at all limited to the poor or foreign population though it was more common among them, nor does he consider his figures complete as the patient treated is often but one of a whole family affected. The increase thus noted in Boston and Philadelphia is not limited to these seaport cities, as is shown by the figures of the American Dermatological Association. In tabulating the cases of skin disease under observation in Boston, New York, Baltimore, Chicago and St. Louis, a steadily increasing percentage of scabies is seen. The figures may be condensed to these footings:

	Patients.	Cases.	Per cent.
1880	11,047	100	0.9
1881	11,076	134	1.21
1882	11,402	202	1.77
1883	15,490	334	2.15
1884	8,934	300	3.36
1885	14,007	442	3.15
1886	14,666	632	4.31
1887	10,366	643	6.2
1888	14,253	965	6.76
1889	17,544	960	5.53
1890	6,481	426	6.57
1891	12,574	678	5.39

In private practice the percentage rose from 0.52 in 1880, to 2.17 in 1887. Since that date private cases have increased almost as rapidly, proportionately, as have the dispensary cases.

The most important cause of this increase is in the steadily decreasing standard of cleanliness of the present immigrants, especially among the Russians, Poles and Italians. "Judged by dispensary observation, it would seem that the itch is the normal state in the steerage of to-day. These cases arriving in our midst are so many additional foci for its spread."

Other important factors are the day-nursery and children's home, "it being not uncommon to find that the invasion of a whole family may be traced to the return home of a child temporarily placed in such institutions."

"Another element in its increase, and especially among the better classes, is to be found in our growing tendency to travel, and the rapid multiplication of travelling salesmen and drummers. With ordinary and proper precautions on the part of hotels, this factor should sink into insignificance, but it is extremely doubtful if the linen in the average hotel bed is always changed, or changed in its entirety, after a single night's occupation; nor are the cheaper hotels alone culpable."

THERAPEUTIC NOTES.

COMPARATIVE INFLUENCE OF LARGE AND SMALL DOSES OF IRON. — The comparative effects of large and small doses of iron and the indications for the one or the other are discussed in the *Therapeutic Gazette*. The experience of the writer in treating twelve cases of anæmia which were as far as possible alike confirmed his belief in the value of small doses. Six of these people received two or three grains of reduced iron three times a day, and the remaining six received one-third of a grain three times daily. The six that received the small doses had far less disorder of digestion than those who received the large doses. They recovered as promptly as those receiving the large doses, if not more so. It is true that in some conditions in which there is gastro-intestinal disorder associated with the formation of gas arising from fermentation or decomposition, and in which the anæmia is largely due to destruction of the constituents of the blood by the absorption of poisonous materials from the intestine, large doses of iron are absolutely necessary, because in these instances only a small quantity of iron is absorbed, and the greater amount of it forms a sulphide of iron, or other compound, with the contents of the intestine. Where we have, therefore, a destruction of the iron in large amount it may be necessary to give it in full dose; but, unless this is the case one-eighth of a grain of reduced iron will in most cases give better results than three grains. Under these circumstances constipation more rarely occurs, and we also avoid in this way the so-called iron headache.

MORPHINE IN PUERPERAL ECLAMPSIA. — In a recent dissertation published by Kranz, under the direction of Veit, he gives the results of seventeen cases of eclampsia during pregnancy and parturition. All were treated in a similar manner by morphine. There were two fatal cases — one due to rupture of the uterus, and one to mitral stenosis with contracted kidneys. Four of the children were dead, in two of whom any deleterious action of the morphine was clearly ruled out. The effect which followed the initial dose, always 0.03 gm., was immediate and often lasting. If necessary the injection was increased gradually to 0.09 gm. in the course of nine hours. The largest amount given in any case was 0.095 gm., in two hours and a half.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 7, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	742	312	18.72	11.83	9.72	1.17	5.72
Chicago	1,438,000	—	—	—	—	—	—	—
Philadelphia	1,115,562	362	126	13.44	12.04	5.04	2.24	3.92
Brooklyn	978,394	379	170	16.94	10.40	9.62	1.56	4.16
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	209	84	25.44	10.08	11.52	1.44	6.24
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	—	—	—	—	—	—	—
Cincinnati	305,000	93	28	19.26	17.12	9.63	2.14	6.42
Cleveland	290,000	96	47	24.38	11.66	7.42	3.18	9.54
Pittsburg	263,709	99	46	19.19	10.10	6.06	4.04	—
Milwaukee	250,000	76	44	30.26	5.28	19.80	2.64	6.60
Nashville	87,754	24	9	8.32	29.12	—	4.16	—
Charleston	65,165	—	—	—	—	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Worcester	96,217	28	11	14 28	10.71	7.14	—	3.57
Fall River	87,411	31	18	22.61	12.92	22.61	—	—
Lowell	87,191	33	11	24.24	15.15	12.12	9.09	3.03
Cambridge	77,100	—	—	—	—	—	—	—
Lynn	62,656	18	6	11.11	22.22	—	—	—
Springfield	48,684	16	5	31.25	—	12.50	12.50	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	27	14	3.70	7.40	—	—	3.70
Holyoke	41,278	14	8	50.00	21.42	35.70	14.28	—
Salem	32,233	6	2	—	16.66	—	—	—
Brockton	32,140	—	—	—	—	—	—	—
Haverhill	31,396	4	1	25.00	—	—	25.00	—
Chelsea	30,264	15	8	26.66	13.33	13.33	—	6.66
Malden	29,394	10	1	10.00	10.00	10.00	—	—
Newton	27,556	—	—	—	—	—	—	—
Fitchburg	27,146	7	3	—	—	—	—	—
Taunton	26,972	7	2	42.84	14.28	42.84	—	—
Gloucester	26,688	4	2	25.00	—	—	25.00	—
Waltham	22,058	2	1	—	—	—	—	—
Quincy	19,642	8	4	—	12.50	—	—	—
Pittsfield	18,802	2	0	50.00	—	—	50.00	—
Everett	16,585	2	1	50.00	—	—	—	—
Northampton	16,331	4	2	—	—	—	—	—
Newburyport	14,073	6	0	—	16.66	—	—	—
Amesbury	10,920	1	0	—	—	—	—	—

Deaths reported 2,356: under five years of age 1,015; principal infectious diseases (small-pox, measles, diphtheria and croup,

diarrhœal diseases, whooping-cough, erysipelas and fevers), 436, consumption 279, diarrhœal diseases 217, acute lung diseases 205, diphtheria and croup 110, typhoid fever 49, scarlet fever 21, whooping-cough 20, cerebro-spinal meningitis 19, measles 2.

From small-pox New York 3. From scarlet fever Pittsburg 8, Boston 7, Philadelphia 2, Brooklyn, Cleveland, Milwaukee and Chelsea 1 each. From whooping-cough New York and Philadelphia 5 each, Brooklyn 4, Boston 3, Cincinnati, Cleveland and Pittsburg 1 each. From cerebro-spinal meningitis New York 5, Brooklyn and Boston 3 each, Cleveland and Lynn 2 each, Worcester, Somerville, New Bedford and Everett 1 each. From malarial fever Brooklyn 2, New York, Philadelphia and Nashville 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,327,846, for the week ending September 30th, the death-rate was 20.2. Deaths reported 4,001; acute diseases of the respiratory organs (London) 231, diarrhœa 339, diphtheria 124, fever 98, whooping-cough 90, scarlet fever 76, measles 28, small-pox (Bradford 5, London 2, Birmingham and Oldham 1 each) 9.

The death-rates ranged from 12.3 in Huddersfield to 31.0 in Sunderland; Birmingham 16.5, Bradford 21.2, Cardiff 18.7, Halifax 14.7, Leeds 23.2, Leicester 20.6, Liverpool 25.9, London 21.1, Manchester 22.5, Newcastle-on-Tyne 15.6, Nottingham 13.7, Sheffield 20.9.

METEOROLOGICAL RECORD,

For the week ending October 7, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r.*		Rainfall in inches†
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S.. 1	29.71	52	59	44	53	72	62	N.W.	N.W.	12	20	O.	O.	
M.. 2	29.90	55	59	51	75	82	88	N.W.	E.	8	4	O.	O.	
T.. 3	30.10	55	60	50	70	94	82	N.	E.	8	10	R.	C.	
W.. 4	30.04	53	55	51	94	90	92	N.E.	N.E.	12	5	O.	O.	.01
T.. 5	30.04	58	65	51	80	81	80	O.	S.W.	0	8	C.	C.	
F.. 6	30.14	57	61	53	80	88	84	N.	S.	4	9	O.	C.	
S.. 7	30.01	65	74	56	94	79	86	S.	S.W.	14	8	C.	O.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 7, 1893, TO OCTOBER 13, 1893.

Leave of absence for one month, to take effect on or about October 15, 1893, is granted CAPTAIN GEORGE MCCREERY, assistant surgeon, U. S. A., Fort Sidney, Nebraska.

FIRST-LIEUT. ALLEN M. SMITH, assistant surgeon, will proceed without delay to Fort Missoula, Montana, and report to the commanding officer of that post for temporary duty, to enable CAPTAIN WILLIAM D. CROSBY, assistant surgeon, to take advantage of the leave of absence granted him.

FIRST-LIEUT GEORGE D. DESHON, assistant surgeon, is relieved from further duty pertaining to the medical section of the War Department Exhibit, World's Columbian Exposition, Chicago, Ill., and will return to his proper station, Fort D. A. Russell, Wyoming.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING OCTOBER 14, 1893.

GEO. H. COOKE, medical inspector, from Navy Yard, League Island, Pa., and to special duty in Philadelphia, Pa.

E. Z. DERR, surgeon, ordered to Navy Yard, League Island, Pa.

B. S. MACKIE, surgeon, detached from duty in Philadelphia, Pa., and wait orders.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday, October 23, 1893, at 8 o'clock, P. M.

Dr. F. I. Knight: "On Sending Patients Away from Home." Discussion opened by Dr. E. H. Whittier.

Dr. Edwin E. Jack: "A Case of Recurrent Paralysis of the Oculo-motor Nerve." Discussion opened by Drs. O. F. Wadsworth and G. L. Walton.

JOHN T. BOWEN, M.D., *Secretary.*

RECENT DEATHS.

JOHN S. H. FOGG, M.D., died in South Boston, October 16th. He was a graduate of Bowdoin College in the class of 1846 and of the Harvard Medical School in 1850. He served in the Legislature and was for many years a member of the Boston School Committee. He was an interested student of early colonial and natural history and had wide reputation as an autographist of unusual accuracy of judgment. He was a sufferer for the last twenty years from paraplegic paralysis, but maintained an unfailing cheerfulness and patience in continuing such work as his affliction permitted.

HJALMAR A. ABELIN, M.D., formerly professor of children's diseases in the Carolina Institute, Stockholm, died September 13th, aged seventy-six years.

EPAMINONDA ABATE, M.D., died in Naples, September 26th, aged seventy years. He was much interested in the favorite Italian study of methods for petrification of human corpses and rediscovered the method of Dr. Segato, which had been kept a secret and which was thought to be lost on the death of the inventor. Following up his researches as to the best means of arresting putrefaction, he gave to the results a practical turn for the conservation and transport of alimentary substances. He devised and carried out a special means of importing the flesh of animals slaughtered in South America into Italy — a means till then unknown to his compatriots.

BOOKS AND PAMPHLETS RECEIVED.

Diocese of Massachusetts. Tenth Annual Report. 1893.

Hysterical Aphonia. By W. Scheppegrell, A.M., M.D., Reprint. 1893.

The Duty of the State to the Insane. By Dr. Andrew MacFarlane. Reprint. 1893.

Perityphlitis; Report of Three Cases of Perforating "Cæcitis" and "Pericæcitis." By F. C. Schæffer, M.D. Reprint. 1893.

Tetra-Ethyl-Ammonium; a New Solvent for Uric Acid Discovered at the Edison Laboratory. By Frederick Peterson, M.D. Reprint. 1893.

Quarantine *vs.* Sanitation. Modern Scientific Views of the Cause and Prevention of Asiatic Cholera. By William T. Sedgwick, Ph.D., Boston. Reprints. 1892-93.

Annual Report of the Supervising Surgeon-General of the Marine-Hospital Service of the United States for the Fiscal Year 1892. Washington: Treasury Department. 1893.

Heath's Practical Anatomy, a Manual of Dissections. Eighth edition. Edited by William Anderson, F.R.C.S. With 329 engravings on wood. Philadelphia: P. Blakiston, Son & Co. 1893.

Sarcoma of the Pons and Glio-Sarcoma of the Cerebellum. Acute Ulcerative Endocarditis; a Brief *Résumé* of the Pathology of Eight Cases. Vitelline-Duct Remains at the Navel. By Ludwig Hektoen, M.D., Chicago. Reprints. 1893.

The Medical Press. The Spelling of Some Medical Words. A Temporary Change in the Axis of Astigmatism. The Duty of the Community to Medical Science. The Pernicious Influence of Albinism upon the Eye. By George M. Gould, A.M., M.D., Philadelphia. Reprints. 1893.

Essentials of Bacteriology: being a Concise and Systematic Introduction to the Study of Micro-organisms for the use of Students and Practitioners. By M. V. Ball, M.D., physician to the Eastern State Penitentiary at Philadelphia. Second edition with eighty-one illustrations, some in colors, and five plates. Saunder's Question Compends. Philadelphia: W. B. Saunders. 1893.

Hernia; its Palliative and Radical Treatment in Adults, Children and Infants. By Thomas H. Manley, A.M., M.D., visiting surgeon to Harlem Hospital; consulting surgeon to Fordham Hospital; member of New York Academy of Medicine, American Medical Association, New York State and County Medical Association, National Association of Railway Surgeons, etc. Philadelphia: The Medical Press Co. 1893.

Essentials of Minor Surgery, Bandaging and Venereal Diseases. Arranged in the form of questions and answers. Prepared especially for students of medicine. By Edward Martin, A.M., M.D., clinical professor of genito-urinary diseases; instructor in operative surgery and lecturer on minor surgery, University of Pennsylvania; surgeon to the Howard Hospital; assistant surgeon to the University Hospital. Second edition, revised and enlarged. Seventy-eight illustrations. Philadelphia: W. B. Saunders. 1893.

Lecture.

LECTURES ON SURGERY.[1]

BY DAVID W. CHEEVER, M.D.,
Professor of Surgery in Harvard University.

XVIII.

WOUNDS OF THE FACE.

Wounds of the face open up the whole subject of plastic surgery. The essential point is, that in every operation, the skin that has been cut and torn away should be replaced, and preserved, if possible; for a very slight scar and loss of substance may make quite a difference in the facial expression. Thorough cleanliness, careful matching, sewing up with fine thread and fine needles. I think you have noticed when an amputation stump, or breast, which has been excised, has been shown as a fine result of first intention, a fine even scar which finally sank away into a white line, but on either side of it a long row of very conspicuous stitch-holes; and they are slower to fade away, dimple the skin, and draw it in, making more marked scars. This, however, in the breast makes little difference; but on the face it makes a great difference; so that the finest sewing must be done, or the buried suture used, so as to avoid so many conspicuous punctures.

A large class of operations used to be done to repair the nose, when it was lost. I think surgeons are becoming rather more discouraged about these operations, the restoration of the nose. It can be restored by flaps taken in various directions; but to restore its shape and its color is almost impossible. You generally have a flat, deformed, soft nose, with a very pale color; and it is scarcely less conspicuous than the hole it was meant to cover; consequently, unless you have to operate on the nose for the extermination of active disease going on, it is a question whether it is not better to advise the patient to wear a mask over the nose, than to do a plastic operation on a large scale. The *papier-maché* noses which are made are extremely good, and can be replaced when they wear out, without much expense.

On the eyelids and lips plastic operations are of great importance, especially to avoid extreme drawing down of the lower lid leading to constant flow of tears over the cheek, to gradual change of the inner surface of the lower eyelid from its long exposure, and to danger of ulceration of the cornea from long exposure to the air; so that every resource of grafting or turning over flaps should be practised about the lids; also about the lips, where much can be done.

It is quite a common thing for foreign bodies to be put in the nose and ears by children. One should suspect in the case of a child who is supposed to have a polypus in the nose that he has instead a foreign body. It will prove to be a foreign body in a large percentage of cases. The child has inserted it unseen; is too young or afraid to tell of it. It remains caught on the turbinate bone, produces ozæna, filthy discharge, and is supposed to be a polypus. I say this to impress on you the importance of very thorough examination before any operation is undertaken in the child's nose. The foreign body once found, can be easily extracted in a variety of ways — with the hook or snare; or, if necessary, by cutting up the ala of the nose by a simple incision; turning it one side; taking out the foreign substance; the subsequent scar is almost nothing.

In the ear, the foreign bodies are not so often put in, as they exist in the form of some living creature; either a little bug or a fly, an insect of some sort. There is a very simple expedient to relieve the distress which these insects occasion immediately, which is harmless; and that is to pour in, or inject either oil, or melted mutton-tallow, and allow the latter to set in the ear. It does so in a very few minutes. The insect is imprisoned and killed, and can be syringed out and extracted at leisure. I speak of this as preferable to water because it is more effectual. You will hardly realize the intense agony and almost mania inflicted on a person by the presence of an insect in the ear which is free to buzz on the drum. The torture is terrible; and speedy inflammation is set up, unless the insect is removed. It is easier to destroy the insect in this simple way than to search for it while the patient is in distress.

SUICIDAL OR HOMICIDAL ATTEMPTS TO CUT THE THROAT.

The person who attempts to cut his throat, in the majority of cases, cuts too high to destroy life. A large proportion of the cuts are directly beneath the chin; and, if they go deep enough, open the floor of the mouth. The cut is directly between the hyoid bone and the chin usually; next between the hyoid bone and the top of the larynx; and next opening the trachea. Homicides occasionally seize the victim and cut the throat so thoroughly that a simple transverse cut divides also the vessels; but a suicide rarely divides the vessels; they lie so deep, descend backward so rapidly as they go down the neck behind the sternum, that they are rarely reached by the ordinary transverse cut.

The danger of the ordinary cut throat consists in the effect it is going to have upon the breathing, and upon the chink of the glottis, either by hæmorrhage, or by suffocative œdema. All cuts above or through the larynx, above the level of the chink of the glottis, are dangerous in the consequences they may bring to the glottis itself. The vessels cut are usually small. The nerves which are reached by a transverse incision are few in number, and only terminal branches; and were it not for the chance of trouble taking place in the breathing apparatus subsequently, the injuries would be very rarely fatal.

However, the person sometimes cuts lower down, and cuts below the vocal cords; then he is no more in danger of suffocation than in the operation of tracheotomy; and the cut low down is harmless as regards the dangers of dying of dyspnœa.

The important point in regard to cuts high up is that they should not be closely sewed up without allowing some chance for drainage, and preventing the chance of infiltration into the larynx and the glottis: hence to sew any wound in the throat, which has penetrated deep enough to open the air-passages, is not good surgery. The parts should be approximated without stitching, and secured by a bandage. The parts will heal by second intention, and do very well. Meanwhile, we have entire security; for if the wound is not sewed, we have control of the breathing apparatus.

[1] These are unwritten lectures printed from the stenographers' reports. Verbal corrections are made in revision, but no rhetorical changes. They were delivered to the third and fourth classes as part of the regular course.

There are other cases where the passages have been opened above the vocal cords; where the cuts are very deep; and where it is wiser in the beginning to do tracheotomy, and let the patient wear a tracheatube, rather than to risk anything that is going to take place from injury inflicted on the larynx and vocal cords. After tracheotomy, it is perfectly proper to draw together the wounded parts; wire together the larynx, and try to make the wound heal by first intention; but you must be sure, as regards the chance of suffocation, before you adopt any of these measures, Either leave the wound open, or do tracheotomy as a preventive measure. A few of these patients die of shock; but very few. Almost all the suicides, after the commission of the act, come to themselves and wish to recover; and the majority of them do recover, unless the wound has gone so deep as to involve the pneumogastric, or the large vessels; or to lead to some subsequent abscess, or burrowing cellulitis of the neck. The cut of the pneumogastric is usually fatal by producing a slow form of pneumonic consolidation in the lung supplied by the wounded nerve; and the patient usually dies of this complication. Wound of the carotid artery is immediately fatal unless it can be secured at the moment. Wound of the jugular vein is not infrequently recovered from. I mean, of course, the internal jugular vein; for the external vein is a vessel not very dangerous to wound. It was the one formerly selected for venesection in children, when venesection was practised. It is easily secured and not very large.

INJURIES OF THE ABDOMEN.

Cuts and stabs and perforations of the abdominal walls are liable to be dangerous irrespective of wounding the viscera. The dangers are two. One is immediate; and the other is subsequent. Both these dangers can be classed under the name hernia. The immediate danger of hernia is that the wound gaps a little, a little bit of omentum gets forced through the wound and slowly emerges from the abdominal cavity under the peristaltic movements. You will be surprised to see through how small a puncture a large piece of omentum will be extruded on to the wall of the abdomen; and this may become strangulated and make trouble if it remains. The proper treatment is to cleanse the part thoroughly, carefully enlarge the wound, and sponge out the cavity, and restore the omentum into the abdominal cavity, and to stitch it up. Now comes the subsequent danger, which is of hernia after the wound has healed. You can hardly cut through the strong fascia of the abdominal muscles in any direction without the risk of subsequent ventral hernia in the scar. The wound heals by cicatricial tissue. Unfortunately it does not seem to possess, in this region, that great power of contraction, that it has in the burn, or that cicatricial tissue has in the perineum after an injury to the urethra. It is here a soft tissue constantly moved and stretched by the use of the abdominal muscles, and is very apt to yield and gap open after a few months, and give rise to a hernia. In this case we have but one resource. We may try, if we wish, to reduce the hernia; cut down and make a fresh incision, and see if we can get a stronger union than was there before. This is of questionable success. If we do not attempt that, the only other resource is to apply the ventral truss for a hernia, which will keep the bowel in. I allude to this, particularly, because I do not think it is strongly enough insisted on that whenever the abdominal muscles are cut through, the chances of subsequent hernia are very great indeed.

Since the introduction of antiseptic surgery the peritoneal cavity has been opened with impunity, compared with past times; and a new name has been sought from the Greek to describe the operation; the name of laparotomy; and this operation is done for a great variety of purposes. There are two or three of the more prominent reasons why it is done that I shall speak of now. One is for what is called stoppage of the bowels. Of this there are two principal forms. One is twist or volvulus, and the other the folding in of the gut into itself, sometimes called intussusception.

Now it may make but little difference in the prognosis which of these two forms of trouble exists, and either of them may call for operation. The diagnosis between the two may be important and useful as guiding to the proper treatment by operation. We may say in general terms that intussusception is much more common in the child than in the adult. The peristaltic motion is more powerful in the child; the mesentery is more free. The folding in of one portion into another is much more apt to occur in the young child than in the adult. Hence the age of the patient influences us in making the diagnosis. The subsequent symptoms produced by the stoppage also guide us a good deal to the diagnosis. In either of these events, whether intussusception or volvulus, immediate stoppage of peristaltic action occurs above the seat of obstruction; the bowels cease to move, and accumulation of gas takes place; but in the twist or volvulus this is absolute and complete from the beginning; the patient has generally no desire to have any discharge from the bowels, either of wind or other substances, and makes no effort. Everything seems to be dead and still. On the other hand, the child that has an intussusception has, for a day or two after the accident, a constant desire to move the bowels, and is constantly making straining efforts at stool. Moreover, these efforts do produce something. They produce serum and stringy mucus, and occasionally a little blood; and the child is making incessant attempts for the first day or two after the onset; and this guides somewhat to the diagnosis between twist and intussusception. I should say that the diagnosis between the two is important in this way, that the intussusception is not so hopeless as the twist. Nature sometimes, though rarely, cures the intussusception, either by retracting the bowel back into its normal place; or, as is more frequent, by causing it rapidly to adhere, causing the inner piece to slough, making union of the two ends of the intestine, and discharging the sloughing piece through the natural tract and through the anus, by the efforts of the child itself. This sometimes occurs in the course of the second week after the intussusception; though rarely. So in the treatment of these two affections our first efforts in regard to intussusception should be to restore the bowel to its normal condition; and if we had made the diagnosis of volvulus or twist we should know that the treatment we are going to use to push back an invagination, would be worse than useless in volvulus. We use large enemata of fluid or air, and invert the patient, and try to promote retro-peristalsis, to push the bowel back into its normal place. This would be worse than useless in twist. In twist or volvulus the seizure is immediate; pain intense and

localized; efforts at stool are none whatever. Peristaltic motion soon ceases absolutely. The abdomen is like the abdomen of a dead person, except that it rapidly becomes distended with gas above the point of stricture. The high temperature produced by this state of things goes on from three to five days. Generally by the fourth or fifth day the symptoms undergo an apparent amelioration; although this is entirely deceptive, and does not mean that the patient is going to get well. In other words, the temperature falls; pain ceases; no passage takes place from the bowels; no wind is passed; the size of the bowels may not recede; but the temperature falls, and his pain ceases. Meanwhile the pulse flickers and grows more rapid; the capillary circulation is a little obstructed and dark, and he dies usually without suffering; and the signal of the loss of pain and dropping of temperature on the fourth or fifth day means that sloughing of the part or mortification in the abdomen has taken place, to be followed by death.

In these cases we have some hope, that if nothing else has succeeded in relieving the patient, opening the abdominal cavity and seeking for the cause of the obstruction may do so; that an invagination, if not too old, may be reduced; or if irreducible, the two ends of the intestine may be cut off and sewed together, thus imitating the process of nature, which is trying to slough off and unite the pieces: that a twist may be relieved by dividing adhesions.

If then we are thoroughly convinced that other measures are failing; that the diagnosis is reasonably clear; when the second or third day has arrived, it is good practice to open the abdominal cavity and see if we can give relief. Meanwhile, if the diagnosis is uncertain; if the time has not arrived when you think it is safe to open the abdominal cavity; a good deal can be done in the way of relief by medicine; and certain things are very comforting to the patient, and usually check the progress of inflammation. These are, in such violent cases, the free use of opium; and the application of cold, or warmth, to the abdominal wall. Usually warmth is most grateful to the patient; but if cold is grateful, and can be kept up by means of the cold water coil or ice bags, it no doubt is good treatment in checking congestion and effusions. It would be obviously improper, perhaps useless, in these cases where we are pretty clear that a twist or invagination has taken place, to give cathartics. If grave doubts exist as to the cause of the obstruction; if we feel that it may be a temporary stoppage of peristaltic action from spasm; or cessation of flow in the gall-ducts; or from impaction of fæces; then cathartics are proper remedies to use. The question then arises what cathartic? The most useful in allaying the irritability of the intestine are two in number. They act very differently. One, the well-diluted saline solutions of any kind; epsom salts; sulphate of soda, etc., which can be given in small and repeated doses, and produce a large flow of serum from the mucous membrane of the alimentary canal. The other agent is also extremely valuable, because it acts quietly and smoothly; and in the end, if the obstruction is removable, it is irresistable; and that is castor oil; not given in the ordinary way; but in minute doses at short intervals; a drachm every four to six hours, thereby the patient getting from one-half to one ounce every twenty-four hours; and this persisted in, two or three days, will certainly, in the case of ordinary obstruction, if the oil is retained well on the stomach, produce, sooner or later, thorough fæcal evacuations, and without disturbance.

Then we have that large class of cases where the trouble begins by inflammation in or about the appendix, and head of the cæcum; sometimes behind the peritoneum; sometimes within the peritoneum; sometimes beginning by perforation of the appendix; and sometimes, apparently, by cellulitis in and around the appendix, not followed by perforation. It is well-known that perforation of the appendix, with a throwing out of some hard mass into the peritoneum, is not necessarily followed by fatal peritonitis; because a localized peritonitis is immediately set up in a large number of cases. The foreign substance becomes speedily encysted; walled off from the general peritoneal cavity; and finally terminates in the formation of an abscess, which may, or may not, have a fatal result, if left alone. If the adhesions are strong enough, it may seek an opening through the abdominal walls, or lumbar region; or again, as is more frequent, it not seldom finds its way down into the pelvis, and forms a pelvic abscess, and finds an exit, in safety in some cases, in the rectum or vagina; so that perforation through a small opening, letting out a small quantity of fluid matter, is speedily followed by walling in of the offending portion by rapid adhesions. You, perhaps, in seeing some of the results of operations on the appendix, may have seen how rapidly adhesions take place between the coils of intestine, when there is an opportunity to do so.

The question in these cases is very doubtful whether immediate laparotomy should be done, or whether we should wait. Very many patients recover without operation. It is true that they are left afterwards with the chance of another attack of the disease; but it is also true that an operation, which is done, leaves them necessarily with adhesions; with subsequent impairment of the mobility of the parts; chances of subsequent inflammation, as the old adhesions of the original perforation do; so that, although we may save life by operating, we cannot say yet, that we can cure the place we seek to cure. We remove it; but leave the adhesions of surgery in the place of the adhesions of disease.

The diagnosis is made much easier in these cases if any tumor can be felt. By that we mean anything different in sensation to the touch, or percussion, from the rest of the abdomen; any thickening, or hardening, or obscure feel; above all any œdema of the parts, when the disease has gone so far, may make us feel quite positive, if it is on the right side, that we have to do with an inflammation about the cæcum, or appendix. Sometimes, however, the appendix perforates; abscess forms back in the pelvis under the edge of the ilium; nothing can be felt outside; and the little tumor is there, but so deep and overlaid with a mass of intestines filled with air, that it is impossible to appreciate it by the touch. It is in these cases that a careful examination by the rectum may give invaluable information. The finger should be inserted as far as possible into the rectum; you make the patient strain down, and you gain a little; in a certain percentage of cases, where no tumor can be felt outside, it can be detected through the rectum, pressing down in the pelvis in the right iliac fossa; and once detected there, of course it confirms the suspected diagnosis of an abscess about the appendix, which we could not feel from the front. I think this precaution never should be neg-

lected in examining any case of this supposed disease. Even if we feel a tumor outside, I should be disposed to make a thorough examination by the rectum; because we may find, to our surprise, that it has already gone so far that it begins to point, so to speak, in the rectum; and a dimple, with fluctuation, is not infrequently felt high up in the indurated mass in the rectal wall; and tapping may be done there, and the necessity for laparotomy avoided.

I would not have anything I say discourage in the slightest degree the importance and benefit to be derived from opening the abdomen to seek for the products of inflammation in and about the appendix; only, in feeble and tubercular subjects, you will have recurrent attacks about the region of the appendix, which in many cases will get well for the time being, without the use of the knife, by gentle measures; as fomentations and rest, and the free use of opium; and the patient go about, for a long while, without another attack.

COLOTOMY.

Colotomy is opening the colon to make an artificial anus; it is done for obstructive disease of the rectum. That obstructive disease is generally cancer. The rectum, as a rule, is not obstructed by cancer near the anus; it is obstructed higher up. The reason is this: if cancer, or any obstructive tumor forms in the rectum, as high as you can feel with the finger, you find that the bowel is invaginated; conveying to the tactile sense very much the same impression that you feel when you examine the female and insert the finger at the orifice of the os uteri; around this is spread the hardened mass of cancer; that is, the bowel is pocketed through the stricture. You find nothing of this kind in the forms of obstruction which exist within an inch, or inch and half, of the anus. There it is simply infiltration of the rectal wall; a mass of rough and ragged disease, through which you pass the finger into the cavity of the bowel above. Cancer in that region rarely becomes the cause of positive obstruction; whereas higher up, the bowel is being forced down into the obstruction, where it is free to move about; and obstruction takes place by a species of chronic invagination. In these cases it is a fair question whether they will prefer to be relieved by the formation of an artificial anus; if so, the place should be as near the natural outlet as you can get, to save the action of the alimentary canal, for the purposes of complete digestion. It has been found, that when the intestine was tapped very high up, it interfered with the nutrition of the patient. A wound going through the first portion of the large intestine is disastrous to complete nutrition. The nearer to the outlet the better the chance of perfect fæcal evacuations and good digestion.

You have two places, either in the loin and left side, or in the groin and left side. The advantage of the lumbar region is that you avoid the peritoneum. The advantage of the groin is, that, although you go through the peritoneum, you can get at the bowel more readily, and perhaps may make it more easy to wear a truss.

The operation in the groin is the easier; the operation in the lumbar region is the harder. In either case, if you want to be perfectly safe in doing the operation, there is a little manœuvre which may be practised. Suppose it is done in the groin; you cut down and find the sigmoid flexure; pass long, curved needles in several directions and sew the bowel up thoroughly to the abdominal walls; leave it forty-eight hours; take off the dressings, and you find the wound still open; the intestine changed in appearance. This thin glistening bowel is converted into granulations. You can slit it completely open without the possibility of extravasation. On the other hand, if you feel it is safe to do so, you may do the stitching up and securing, and make the incision at the moment of the operation; and this is done in many cases. It is said, that by the contraction of the wound, afterwards, the patient gets control over the solid evacuations. That, aided by a truss, may make the patient comfortable and prolong life. It is not a very dangerous operation.

ONYCHIA.

Onychia is a form of disease about the nails. In its simple form it is called run round, or superficial whitlow; it occurs as a slight suppuration about the root of the nail, followed by the raising up of the epidermis; a yellow deposit of pus and abscess, which runs down along the side of the nail.

The remedy is free incision; washing out; and it gets well.

MALIGNANT ONYCHIA.

There is a form called malignant onychia, which is probably neglected simple onychia in the large majority of cases. We seldom see it in people well nourished. You find examples of it in poor, half-starved children, brought to the dispensaries and out-patient departments. These onychiæ refuse to heal. The nail is extracted; and the part treated as a fungus sore, and it may still refuse to heal, and may end in amputation.

CHANCRES ABOUT THE NAIL.

There is a class of ulcers about the nail which are syphilitic, and unfortunately they are most apt to assail members of our own profession. The number of doctors who get poisoned by a slight agnail, and chancre at the root of the nail, is large. Unfortunately, unless the physician is on his guard, he neglects it and thinks it is a simple whitlow; wonders that it does not heal. He poultices it. It is purely a specimen of hard chancre.

It refuses to heal under any treatment. Soon after that a gland is felt at the elbow and up the arm; and later syphilitic roseola appears on the body and the diagnosis is clear. I mention this, because I have seen quite a number, and heard of a great many more such cases, of a suspicious sore about the nail, in practising physicians. If it were my own case I should promptly take mercury, after such a sore appeared upon me. That speedily settles the diagnosis. The moment the patient is slightly mercurialized, the sore softens and begins to heal.

DEEP FELON OR WHITLOW.

A deep felon or whitlow is a suppuration down under the theca and the periosteum, and usually coming on the last phalanx. It is intensely painful; does not swell much; but makes the pulp of the finger hard, and different in feeling from the tip of the other fingers. The pain is intolerable and persistent; destruction of the parts goes on with great rapidity, unless relieved. Unless it is relieved the pus burrows up under the theca of the tendons and affects other joints of the finger; finally gets to the palm and forms palmar abscess; extends without difficulty under the annular

ligament, runs up under the superficial fascia of the forearm, and finally ends the process of suppuration at the elbow-joint. We see such cases where the arm and hand are subsequently crippled by the adhesions that have taken place.

The only treatment is early and thorough and deep incision; and it is a mistake to wait for it to ripen; the ripening is its destructive process. It never should be allowed to ripen; and a deep incision, made at once, will frequently abort the suppurative process, and lead to healing with granulation, in a very few days.

As a rule, pus is always to be sought for on the palmar side. On the dorsal side it is generally only a secondary consequence. On the palmar surface the pus is to be found. A good deal is said of the propriety of opening on the side of the finger. The danger on the side is damage to the nerve and vessels. The danger of damage to the nerve is somewhat serious.

When there is palmar abscess the patient is very sick indeed. The forearm is swollen and œdematous; constitutional symptoms are severe; chills; high fever and exhausting sweats. In these cases it sometimes becomes a question whether to seek for pus in the forearm. We suspect it is there. The symptoms are not relieved. The œdematous condition goes up the arm. The patient does not experience any relief from his pain. The safest place to reach it is in the centre of the wrist, above the annular ligament. Cut down until you reach the superficial fascia and come to the long flexor and palmaris tendons. Now take the dressing forceps and director and pick away between the tendons, until you come to the space upon the interosseus fascia; and there, you almost invariably, get a gush of pus. This is to be kept open and irrigated every day. Occasionally it becomes necessary to make additional openings higher up. This is good surgery. It saves the limb and life; but does not cure the member. The hand is not restored. Patients must expect, subsequently, some adhesion and stiffness of the tendons. If such adhesion and stiffness result, it occurs from the long continuance of the inflammation; from the fact that gluing together of the tendons has occurred, and contraction of the parts with a comparatively useless hand, in many cases; in no sense is this to be ascribed to anything the surgeon does; but wholly to the progress of the disease, before the surgeon was called in. You will find, often, the physician or surgeon blamed for consequences about the usefulness of the hand and arm, where really he saved what could be saved; but could not cure the part.

BUNION.

Bunion is usually upon the great-toe joint and is an enlarged bursa. Usually it is there for the purpose of protecting from friction against the side of the boot. When irritated and inflamed by pressure; when the joint is thrown out of its normal position by shoes which are too short; the end of the toe begins to be thrown in; the joint projects, and it becomes inflamed and tender. A sac is evident upon the surface of the bone; fluctuation can be felt. This sac is an inflamed bursa. Occasionally, by careful treatment, it may be made to subside without suppuration. This treatment should consist in the taking off of pressure; either by cutting the shoe; or by wearing a very large or thick corn plaster, which encircles the joint and allows it to ride free beneath the plaster. Applications may be used at night to allay the inflammation in the part itself. Sometimes a poultice is very useful. You must not be carried away with the idea that we always apply a poultice to produce suppuration. It sometimes prevents suppuration; softens the skin; allays the heat; sweats and foments the part; and frequently produces absorption instead of suppuration. When suppuration exists and is unavoidable, it bursts and discharges through a minute opening. Then it is a long while in healing, because you have a little thickened sac or cyst, which continues to secrete, and it is most speedily cured by laying it open. You must investigate the sac and see whether it goes into the joint. If it does, it must be laid open freely and irrigated; and the part put on a splint. If it does not, the sac may be laid open, scraped out and forced to heal, just as any bursa would. The most important point in treating the early stages of bunion is to get the great toe on a line with the inner border of the foot as it was intended to be by nature; and as you see it in all the old statues. The old sandal prevented the possibility of bunions; dragging the great toe out by a strap between the great toe and second toe. It is a good practice to put between the great toe and next toe a thick piece of paino felting, which can be inserted to keep the toe out, while the patient walks. The shoe must be made on a straight last; and with these means, a great many persons can get along, and prevent the formation of bunions.

Original Articles.

ANTHRAX FACIEI: REPORT OF A CASE.[1]

BY S. E. WYMAN, M.D., CAMBRIDGE.

The occurrence of such cases is sufficiently rare to justify the publishing of notes connected with this dread malady; and a brief *résumé* of the history of anthrax as it occurs in animals and in man will form a fitting introduction to this paper. Anthrax, charbon, milzbrand or carbunculus contagiosus, as a disease in animals, is perhaps the one whose knowledge by man dates back to the earliest period. This is the disease referred to in Exodus, ninth chapter, third verse: "Behold, the hand of the Lord is upon thy cattle which is in the field, upon the horses, upon the asses, upon the camels, upon the oxen, and upon the sheep: there shall be a very grievous murrain." And in the sixth verse: "And all the cattle of Egypt died."

Among the Greek and Roman veterinarians it was known as Οὐδημα. The name of "anthrax" was used by the Greek, and "carbunculus," by the Roman physicians. The Arabians described anthrax in man with even greater accuracy as *Atshac*, *al Humrah*, or Persian fire.

From the fourteenth to the eighteenth century the disease of anthrax was covered up under different names given to various diseases; and only toward the end of the last century was it shown that these manifold diseases were, in reality, only different forms of the same disease.

Chabert, in his monograph,[2] brought order out of

[1] Read before the Cambridge Society for Medical Improvement, May 22, 1883.

[2] Description et traitement du charbon, Paris, 1780.

chaos, and grouped what had been hitherto considered many and various diseases as one malady with varying manifestations; and his classification has been adhered to, not only in France, but in all countries even to this day.

No infectious disease in man or animals (with the exception of tuberculosis) has been more generally recognized, and cases of the same reported, as has been the case with anthrax. Heusinger,[3] in his work on Milzbrandkrankheit, has found the evidences of its presence in almost if not all countries, whether in the most northern or most southern latitudes, in the Old World and in the New. It seems, at first thought, strange perhaps that, although the contagiousness of anthrax has been abundantly proved by numerous observations in the eighteenth century, authors in the beginning of this century should have denied that there was any contagion in anthrax; as, for instance, Delafond, who, in his particular study of anthrax in sheep (*maladie de sang*), considered the rennet, stomach and intestines the special seat of the disease, and ascribed as its chief causes overfeeding and the condition of the soil.

Among animals anthrax is found most frequently where agriculture is in its most primitive condition; and while it may occur in all soils, yet those most favorable to its growth and propagation are soils which are close, impervious, clayey or peaty, and such as are habitually over-manured. Anthrax occurs most often among herbivora; least often among carnivora; omnivora being less susceptible than herbivora, and more so than carnivora.

It would exhaust your patience and time to go further into these details, for which the reader is indebted to the articles by Bollinger, in "Ziemssen's Cyclopædia," Vol. III; James Law, F.R.V.C.S., in "Pepper's System of Medicine," Vol. I; and E. M. Moore, M.D., in "Ashhurst's International Surgery," Vol. II.

As to the etiology of anthrax, Pollender,[4] in 1849, found in the "blood of animals suffering from anthrax a countless mass of fine rod-like bodies, which in appearance and figure resembled vibriones, and in their micro-chemical behavior were seemingly of a vegetable nature." Brauell[5] (in 1857), independently of Pollender,[6] "found the same little bodies in the blood of men, horses and sheep which had died of anthrax." Davaine,[7] however, was the first who associated the presence of these bodies (which, after experiments, he pronounced in 1863, to be bacteria and later bacteridia) as standing in the relation of cause and effect in producing anthrax. Later investigations have substantiated his theory, and to-day the bacilli anthracis and their spores are the recognized cause of anthrax.

The bacilli anthracis in the blood are found to be in the form of fine rods, straight, only occasionally bent or angular, from 0.007 to 0.012 mm. in length, devoid of motion (a valuable aid in their differentiation from the motile bacteria of putrefaction); smaller forms, minute ovoid or oblong bodies are found. The smallest (micrococci) under the highest powers of the microscope are seen, but always with clear-cut, even margins, thus distinguishing them from the normal irregular granules of the blood. Spores are never found in the blood of the living animal; but when the bacilli are grown in organic infusions outside the body, the anthrax germ develops from bacillus or micrococcus into a long, branching filamentous product, which, if oxygen be present, develops into spores. The anthrax germs are very tenacious of life, and the spores to a much greater degree. "Meat cooked for hours, or broth boiled similarly, when taken from anthrax-infected animals, has caused symptoms of anthrax in persons partaking of such food."[8]

In man, Fournier[9] was the first who was able, in 1769, to trace the cause of anthrax to the consumption of anthrax-diseased meat, and to the handling of the wool of such animals.

With the course, symptoms and other interesting topics naturally suggested by internal anthrax, nothing can be presented in this brief article. It is with the external form, which has usually been relegated therefore to the domain of surgery, of anthrax carbunculus, to which attention is specially directed.

Theoretically, man might be infected, as are herbivora, from the soil; but practically such is not the case. The principal ways of infection are immediate and mediate. Of the former may be cited cases caused by handling hides, wool, hair, flesh and other parts of diseased animals. But as to the mediate causes, we have to deal with a more extended number of possible sources of infection. Bites of insects, mosquitoes, blue-bottle flies, and others of a like nature (blood-suckers), which have been previously in contact with anthrax-diseased carcasses are among the well-known causes. Well-attested cases are reported where men or animals, themselves not infected, have been the carriers of the anthrax germs to others. Other ways of catching the infection are by handling harnesses, stable utensils, hay, fodder, the surgeon's knife, etc.; drinking contaminated water; and, in animals, the feeding on meadows containing the buried remains of anthrax-diseased animals.

It is very interesting to note in this place that the site of the primary seat of infection (the anthrax node) is constantly on the exposed parts of the body. Bourgeois[10] long since called attention to the fact that this was most frequently the face, neck, hands or arms and almost never on the trunk. Dr. A. W. Bell,[11] of Brooklyn, in 60 cases reported by him, found that 56 were on the face, two on the hands, one on the wrist, and one on the forearm; and that often the disease had started from the bite of a fly or a mosquito in many of these cases. Bollinger[12] has found in the stomach of such flies as feed on the flesh and blood (horse-flies, blue-bottles, etc.,) the bacillus anthracis, thus completely showing that bites from such insects may cause anthrax.

As to the symptoms, these usually appear within twenty-four hours after inoculation. The patient complains of a stinging sensation in some spot to which previously his attention has been called by an itching. When examined, a small red spot, like a mosquito bite, is seen, but with a small, central, black spot. The further description, taken from the standard authorities, of the *natural* progress of the local manifes-

[3] Die Milzbrandkrankheiten der Thiere und des Menschen, Erlangen, 1850.
[4] Ziemssen, vol. iii, p. 375.
[5] Brauell: Versuch und Unterauch, betr. den Milzbrand des Mensch. u. d. Thiere.
[6] Virchow's Archiv, Bd. xi, p. 132, 1857.
[7] Compt. Rend., T. lx, p. 1296, 1865.
[8] Pepper's System of Medicine, vol. i, p. 939.
[9] Fournier: Obs. et Expe. sur les charbons malins, Dijon, 1757-1769.
[10] Bourgeois: Traite practique d. l. pustule malign, etc., Paris, 1861.
[11] Pepper's System of Medicine, vol. i, p. 926.
[12] Op. cit.

tation was not watched in the case of the patient, whose history will soon be given. "This speedily increases to a small round swelling (papule), which in fifteen hours is surmounted by a minute vesicle with dark-red or bluish contents. This increases from the size of a millet-seed to that of a pea, and in thirty hours bursts spontaneously or under friction, forming a dark-red, indurated, comparatively painless nodule (parent nucleus of Virchow). The areola is swollen, livid and red, and on this appear vesicles similar to the first; these pass through a similar stage, leaving a doughy, gangrenous or hard, livid surface. By this time the surrounding skin is shiny red and livid, and the disease spreads by the same method of extension."

Constitutional symptoms vary: fever at first is slight, but may reach a high point, attended with occasional chilliness, pains in back and loins, languor, great prostration; in fact, such symptoms as are met with in cases of general blood-infection.

The disease lasts from six to ten days.

As to the diagnosis, it must be remembered that the anthrax nodule begins with a small red papule having a dark central point, from which the disease extends as above described. The simple furuncle lacks this black centre and the rapidly rising elevated red areola. Simple carbuncle tends to appear on covered parts of the body, anthrax on uncovered places. In carbuncle, simple, several boils rise and burst simultaneously, and break into one sore; whereas, anthrax extends by separate, isolated nodules like the "parent nucleus." The finding of the anthrax bacillus by microscopical examination would be conclusive if resorted to.

The disease anthrax is very rare: Bilroth says, "Even simple, benignant carbuncles are so rare that in the extensive surgical policlinic in Berlin, where every year 5,000 or 6,000 patients presented themselves, I only saw a carbuncle once in two years or so. In Zurich, also, they were rare." Bryant, in his "Practice of Surgery" (p. 408), says, "Malignant pustule, or charbon, is a disease with which I have no personal experience."

As to prognosis, much if not all depends on the early recognition of the true nature of the malady. In anthrax districts, where the physicians are familiar with its appearance, astonishingly good results have been attained. Nicolai[12] reports a mortality of five per cent, Lengyel and Koranyi nine per cent. (There is no statement made as to the site of the nodule in these reports.) But the prognosis in other districts where anthrax is not so general is worse, the mortality reaching forty to fifty per cent. In considering this part (prognosis), it must be borne in mind that anthrax of the face, especially of the upper lip, is almost always fatal.

As to treatment, the most approved method consists in the excision of the parent nucleus, or cross incisions with the subsequent use of the most powerful germicidal agents, cauterization or local germicidal lotions, injections and applications. The constitutional treatment must also simultaneously be carried out by stimulants, and carbolic acid internally to the extent of fifteen drops daily.

CASE. The patient who forms the basis of this paper was a young man of stocky frame, American born, and nearly twenty-five years of age. He was a teacher, and absent from his school at that time, November, 1886, on a vacation. On the night of November 19th, when going to bed, he noticed a pimple on his upper lip on the left side, just below the ala nasi and at the upper part of his mustache. This pimple he pricked with a needle, and applied cuticura soap to the spot.

November 20th, he was one of the spectators at a football game on Jarvis Field, during which game he sat on the ground, but with thick wraps under him. After returning to his temporary home the spot began to grow painful, and the lip to swell toward bedtime. Sleep was somewhat disturbed, and he presented himself for advice on the following morning. At that time the upper lip throughout its entirety was much swollen; the mucous membrane tense and shiny; the local papule was hard, with a black central spot, tender to the touch and surrounded by a raised, livid areola. Only a minute drop of pus followed the introduction of a grooved needle. The patient was sent to his room, and seen later at 11.30 A. M. At this time free crucial incisions were made through the base of the nodule, and corrosive sublimate solution (1 to 1000) freely injected with a hard-rubber syringe. Thorough washing of the parts with bichloride solution (1 to 1000), was ordered at each application of hot flaxseed-meal poultices.

The wound on the next morning was found tending toward union, and had to be reopened. His sleep had been bad; he was nervous, and had slight chills. The night visit showed the wound more inclined to gape; the central part, which had been kept from closing by the insertion of a plug of cotton saturated in corrosive sublimate solution, was necrosed, and a very small amount of thick, inspissated pus was extracted by means of forceps. There was no fever as yet, and the pulse was only 84; opium was required in order to obtain rest.

On November 24th, the symptoms were more grave; and our esteemed fellow-member, Dr. J. T. G. Nichols, saw the case in consultation at 11 A. M. The swelling had, through its extension by the subcutaneous cellular tissue, formed a second nodule just above the ala nasi, with the swelling and induration extending upwards toward the left eye. As there were evidences of nervous and general weakness, brandy (two drachms every two hours) was ordered. The swelling extended further at night, and the whole side of the face was markedly red and shiny. For the first time the temperature was elevated to 100.1°, with the pulse at 90.

On the morning of November 25th, the fourth day after seeking advice, all the symptoms were so greatly aggravated that Dr. R. M. Hodges kindly consented to give his services and advice in the case. The pulse in the morning early was 90, the temperature 99.4°. Dr. Hodges saw the patient at 11.15 A. M., and considered the case very grave, with the probability of a fatal termination. The pulse at that hour was decidedly irregular and weak, and it was plain to Dr. Hodges that the patient was less strong than he seemed. Radical operation was however advised, and agreed to by the patient and his friends.

Under ether, Dr. Hodges performed the operation, which may be designated as the subcutaneous one, of cutting up thoroughly all the diseased tissue (then occupying nearly the whole of the left cheek) by inserting his knife into the original wound between the outer skin and the mucous membrane and carrying the blade by generous sweeps throughout the whole territory. The hæmorrhage, which was considerable, was stopped, and disinfection accomplished by plugging the

[12] Nicolai: Pepper's System of Medicine, vol. i, p. 943.

entrance wound with cotton saturated with corrosive-sublimate solution.

The patient rallied well, and in the afternoon seemed fully as comfortable as before the operation. The cotton plug was removed, the wound syringed with corrosive-sublimate solution, and plugs of necrosed tissue removed by forceps. There had been some sweating. His pulse varied from 88 to 90, and was rather weak; temperature 100.2°. When a night visit was made on this same day, little change was noticed, except that the left eye (which the swelling had succeeded in closing in the early morning) was even more tightly closed.

On the following day the patient was no worse; in fact, there was scarcely any change. Plugs of necrosed tissue were removed, and the same treatment carried out.

The symptoms were improved on the following day. The patient had slept without opium, and the necrosed tissue came away more freely. It was a disappointment to learn at the visit in the afternoon (3 o'clock) that a third focus had started on the left cheek on a level with the angle of the mouth. This was hard and tender. The breath was offensive, but the general condition was good. This spot extended in its progress along the lower border of the inferior maxilla, involving the lower lip as far forward as the median line. The area which at this time was involved measured two and one-half by three inches, practically the whole of the left side of the face.

No further cutting was done, but by forcing lines of communication from one focus to another, by means of a director and probe, it was possible to reach the whole diseased area by injection with the syringe; and later the necrosed tissue was pressed out from the lower angle of the jaw through the opening first noticed.

His recovery was gradual. He was able to sit up for a while on November 30th, after which date convalescence was rapid, so that he was discharged well, December 3d. Almost no scar remained, and none which is not now covered by his mustache.

PUERPERAL ECLAMPSIA.[1]

BY T. E. CUNNINGHAM, M.D.

IT must be conceded, I think, that this is one of the most dangerous and alarming conditions to be met with in the practice of obstetrics. It destroys more lives than any other puerperal affection, in proportion to frequency. Statistics are not very reliable on this subject; but taking a moderate estimate, it probably occurs once in four or five hundred deliveries, with a mortality of about thirty per cent. for the mothers and fifty per cent. for the children, although some authors place it much higher.

In an experience of two thousand obstetric cases, eclampsia was encountered three times, twice at the commencement and once before labor, and all were primipara who were suffering from albuminuria. One of the patients was very dropsical; and owing to the difficulty of re-establishing the function of her kidneys, complications rapidly followed, which caused her death. The other two slowly but perfectly recovered; one has been delivered since of twins and enjoys good health, whereas the other, who was delivered last December, and apparently made a good recovery, is suffering from chronic parenchymatous nephritis, which, judging from a recent examination of the urine, is in the inactive stage. Two of the children were born dead, the other dying on the third day. This is not a very brilliant showing; and yet it would seem that, in the light of modern science and with the wisdom of the ages to guide us, one ought to be able to cope more successfully with this terrible malady.

Our literature is replete with theories relating to the mysteries which surround its etiology and therapy; but considering that the questions are still *sub judice*, we take up each new journal wondering what the next speculator will have to say. From the repletion and depletion theory of Hippocrates to the bacteriological theory of Gerdes is quite a lapse of time; but it requires very little knowledge to enable one to appreciate the clinical value of the ancient as compared with this modern view of the subject. From a study of the works of different authors and a limited bedside experience, it would seem that we are in possession of all the theories for the explanation of the obstetric phenomena. The difficulty all along appears to have come from trying to make one or two factors do what it takes several to accomplish. We have been taught so long to consider eclampsia as closely allied to albuminuria, that disturbance of functions, other than those of the kidneys, has received but indifferent attention until within a comparatively short time. It is not to be inferred that this is not an important factor, but that the renal affection alone rarely is sufficient to produce convulsions. It is only a part of a whole, a collective cause, the other parts consisting of pregnancy — usually the first — a watery condition of the blood, and high nervous tension. It is a matter of common observation that women looking forward to first motherhood suffer more from excitability of the nervous system and from emotional disturbances than they do in subsequent ones; and when it is realized that this state of things is kept up, perhaps for weeks, exhausting the nervous system and lessening the power of resistance, it is easy to conceive how favorable the conditions are for an explosion, particularly after the noxious elements begin to accumulate, through faulty elimination, whether it be due to pressure on the ureters, renal insufficiency pure and simple, hyperæmia, or acute or chronic nephritis.

The treatment of eclampsia is as varied as its etiology. For the sake of brevity the various means may be enumerated as follows: (1) chloral or chloroform, (2) morphine, (3) venesection or veratum viride, (4) induction of labor. Of course, other medication is called for, such as cathartics, diuretics, diaphoretics, cold to the head, sinapisms to the extremities, and proper conditions of temperature and ventilation, according to the special indications of the case. As the trouble may appear before, during, or after labor, an opportunity is offered for the exercise of good judgment in the selection of the right method or methods of treatment.

Owing to a lack of experience, the third class or post-partum form will not be discussed.

In the second class of cases, which is by far the most numerous, the consensus of opinion seems to be in favor of hastening delivery. I adopted this teaching in two cases of this class, but do not think I would

[1] Read before the Cambridge Society for Medical Improvement, May 22, 1893.

be so rash again, since nature will do the work much better than we can, if we only sustain her. It is taught that the os under these conditions is soft and dilatable; but it is not always so, and the time consumed in manual dilatation may be an opportunity lost. To allay nervous excitement and control spasms is of first importance; then the other conditions can be studied more leisurely, and the suitable means adopted to combat them.

The first patient was a plethoric young woman; and I think she might have been saved had bleeding been resorted to, since by this means the blood-tension of the cerebral vessels would have been diminished and prevented the extravasation that killed her. Routine treatment is as objectionable here as in any other department of medicine.

The second case was in an anæmic woman, with conditions just the opposite in every particular to the first; and if I had given her chloral, and waited for a natural delivery, she probably would have done better and given birth to a living child. As it was, her recovery was protracted, and much of the delay was due to unnecessary manipulation.

In the first class of cases, or ante-partum eclampsia, there are no pains, and labor may not be due for some time; and it is still a vexed question what are the best measures to adopt under these circumstances. The induction of labor is recommended by some who consider you are guilty of double murder if under these circumstances you question the procedure; whereas others, more conservative, recommend it only after all other means have failed. Lusk says, "The practice of waiting for nature proved uniformly disastrous, whilst the induction of labor furnished a certain proportion of recoveries."

Nevertheless, I took exception to this well-known teacher, and treated the third case on the expectant plan. There was an interval of a week between the first convulsion and the delivery; during the first twelve hours there were five convulsions, and the patient complained of severe headache, blurring of sight and nausea; the secretion of urine was diminished, with a specific gravity of 1,008, and contained one-half per cent. of albumen. The bowels had been constipated just before the first attack. The usual remedies for restoring the functions of the stomach, bowels and kidneys were administered; but as they did not operate by the time the fifth convulsion supervened, sixty grains of chloral were given, per rectum, with orders for half that amount to be given every four hours. During the next twenty-four hours the bowels were moved and the stomach settled; nourishment was taken, and, although she complained of headache, she was not nearly so nervous. The urine, collected after the convulsions, was chocolate-colored, had a specific gravity of 1,040, and solidified on boiling. The sediment, examined microscopically, showed renal epithelial cells, blood globules, and hyaline and granular casts. Five days from the time of the first seizure she had three more convulsions, which were controlled by large doses of chloral. In two days labor set in; as, at the end of the first stage, inertia threatened, Dr. Joseph Cunningham was called in assistance, an anæsthetic given, and the delivery of a living baby effected with forceps. The uterus contracted well, pulse 108, temperature 100°. The patient passed into a comatose state, and remained in it for four days. With the return of consciousness, it was found she was blind, and recognized her friends only by the voice. Sight returned in two weeks, and afterwards the convalescence was uninterrupted. The infant died on the third day.

Clinical Department.

A CASE OF FOREIGN BODY IMPACTED IN THE LARYNX.[1]

BY F. E. HOPKINS, M.D., NEW YORK,
Assistant Surgeon to the Manhattan Eye and Ear Hospital, Throat Department; Assistant Surgeon to the New York Eye and Ear Infirmary,

On the evening of October 10, 1892, J. R., an American, aged twenty-seven years, of slight physique and nervous temperament, sat at dinner, and while hurriedly swallowing his soup and at the same time eagerly discussing with his wife the best situation for viewing the Columbian fireworks, he drew into his larynx a piece of bone, which unhappily had been served him in his soup. The soup was made from a large beef bone, and contained chips of its cancellous structure.

There followed the usual spasm of the larynx, with the sense of impending suffocation. When he had recovered his breath a little, he attempted to dislodge the foreign body by swallowing water and then a bolus of soft bread. Failing to get relief, he called upon a physician, who, hearing the patient's story and seeing nothing in his pharynx, passed a bristle probang several times into his œsophagus. The doctor did not secure the offending piece of bone, but said it must have been driven downward into the patient's stomach. He attributed the continued pain in the larynx to the traumatism caused by the presence of the foreign body being dislodged.

The patient, although still hoarse and suffering local pain, continued to attend to his business — that of book-keeping. He, however, daily grew worse, and became so hoarse that it was difficult for those associated with him to understand him. There was increased cough and shortness of breath on exertion, and the effort to speak became more painful. When he came to me on the evening of October 15th, he complained of pain especially at the right side of the larynx, of hoarseness and of shortness of breath. He told me his story, saying that the bone had been removed, but so much pain and hoarseness remained that he feared he might be developing consumption or something equally serious. Upon examination with the laryngoscope the whole larynx was found to be congested. The left ventricular band was inflamed and swollen, concealing the vocal cord of that side. The right ventricular band was somewhat thickened, but less inflamed than the left. An ivory white body was seen upon the anterior half of the right vocal cord, extending during inspiration somewhat beyond the median line. The posterior half of the right vocal cord remained visible. The left ventricular band presented areas of superficial ulceration, since, with every movement of the larynx, it had been abraded by friction against the rough surface of the bone. In fact, because of this irritation, there was more apparent disturbance upon the left side of the larynx than upon the right, although the foreign body was impacted upon the right side. In spite of

[1] Read at a meeting of the Laryngological Section of the New York Academy of Medicine, December 28, 1892.

the evidences of irritation just mentioned, I was struck by the small amount of inflammatory reaction which had been caused by the bone, as it had been imbedded in the larynx a little more than five days. It is indeed surprising that so large and rough a body could remain so long in the larynx and provoke so little inflammation.

This remarkable tolerance of the larynx for foreign bodies is well illustrated by the case reported by Lennox Browne, before the British Laryngological and Rhinological Association on November 28, 1890. A plate of teeth had passed into the larynx during an epileptic fit in sleep and had remained in that position, unknown to the patient and unrecognized by any medical attendant, for twenty-two months. In the discussion which followed, Mr. Kendal Franks referred to a case of the impaction in the larynx, of a triangular piece of chicken-bone measuring on each side over one and one-quarter inches. It had remained in position twenty-three days; and the doctor says: "It is somewhat extraordinary that this piece of bone should have been in that position so long without being got rid of and without setting up more marked irritation." Sir Morell Mackenzie also in this discussion speaks of a case in which a piece of bone was impacted in the larynx for many months. He removed it, and the patient made a good recovery.

Ravenel, in the *Medical News* of March 21, 1891, reports — though on evidence which does not seem conclusive — a case of a pin retained in the larynx for thirty-eight years.

In view of such reported cases we might for a moment be led to think the condition under consideration, one of less gravity than we have been in the habit of regarding it, did we not know that in such a larynx dangerous œdema might be expected upon any added irritation, and had we not the evidence of the damage wrought by the presence of these foreign bodies, as in the case reported by the Chairman of the Section on October 22, 1889 — the case coming under his observation some time after the damage had been done. A tooth-plate measuring three inches in length and containing one tooth, fell into the laryngo-pharynx during a puerperal convulsion. It remained in this position sixteen days, and although it caused much local damage, including the destructive ulceration of the posterior third of both vocal cords, its presence was not discovered until the plate had been loosened by the ulcerative process.

We also have the statement of Mackenzie who, in his work on "Nose and Throat," says: "Sharp angular bodies of any size may cause very acute and constant pain when they become impacted so as to press against contiguous soft parts, and, of course, quickly give rise to a high degree of inflammatory reaction." He also says that "when a foreign body is impacted in one of the ventricles of the larynx it cannot generally be moved, and if it passes into both ventricles it will most likely require to be broken or crushed before it can be extracted." He refers to a case of a button-mould fixed in the left ventricle of the larynx, and extracted after six weeks by a laryngotomy. He reports a case of a man, "who while taking soup made from a sheep's head, suddenly felt choked by something going the wrong way. Examination showed a piece of bone lodged horizontally in the anterior portion of the larynx, just above the level of the vocal cords in such a manner that it completely blocked the anterior third. It could not be removed and symptoms being urgent a tracheotomy was done. The bone was then broken up and removed. It was found that it had been impacted in both ventricles. On putting the various pieces together, they made a lamina of bone three-quarters of an inch long and one-half inch wide. The long diameter had been across the larynx and about three-eighths of an inch in the right ventricle and rather less than one-quarter of an inch in the left ventricle."

Returning to the case in hand: after cocainizing the pharynx and larynx, I attempted the removal of the bone by the use of a probe bent into the form of a hook. The intruding bone stood out into the larynx with such enticing clearness, apparently just resting upon the vocal cord, that I thought it might be loosened by the probe, and the patient would then be able to cough it up. The probe grated over the projecting edge, making as little impression as it would drawn over the edge of a bowlder. I then used Mackenzie's forceps. The shape of the bone was such and it was so situated that it could not readily be grasped either by forceps closing antero-posteriorly or those closing laterally. Repeated attempts were required before it was possible to seize the bone at all, as the slightest irritation was followed by spasm of the larynx. Even when the foreign body had been caught by the forceps, it was so powerfully gripped by the contraction of the larynx, and the ragged edges of the bone gave the surrounding tissues so strong a hold upon it, that I feared to use too much force lest serious laceration should result. I did at one time lift with force sufficient to raise a weight of five pounds, without doing more than slightly to loosen the bone from its bed — so firmly was it impacted and so tightly grasped by the muscular spasm. Having loosened it, I directed the patient to take a slow, deep inspiration and then cough violently. As he did this, I had the satisfaction of hearing the bone strike the cuspidor.

An examination of the bone reveals in part the difficulty of its removal. It is of a pointed wedge shape, having a base one-quarter of an inch in thickness and one-half an inch in width and an extreme length of eleven-sixteenths of an inch. The dimensions are all a trifle greater than those given, as the sharp spiculæ extend beyond the general surface. When this body fell into the larynx, the sharp point entered the right ventricle, and was then driven deeply into the tissues by the spasm of the larynx provoked by its presence. I have tried to indicate by an ink line upon what was the upper surface of the bone, the extent to which it was covered by the right ventricular band. The portion from the line toward the base was visible upon examination. The outer side of the line is about one-half an inch from the point, and this is the extent to which it was driven into the ventricle. The right ventricular band, as already remarked, was but little swollen.

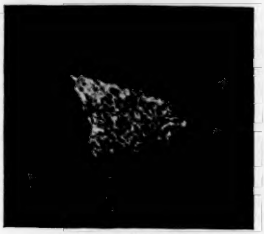
Some reaction followed as a result of the attempts at removal, and the patient slept none that night. This wakefulness was due principally to his mental condition, as he had become quite nervous about himself, and said he feared his throat would close if he went to sleep.

Two days later, on October 17th, the right cord was visible for its entire length. The left ventricular band was still much swollen, and presented two superficial ulcers at points which had impinged upon the

base of the bone. There was also a linear, vertical abrasion upon the right ventricular band, probably caused by the efforts at removal. The whole larynx was red and tumid, and the patient's voice was hardly as good as when first seen.

On October 22d, cords were both clear and intact, the ulcerations had healed, the left ventricular band was still somewhat swollen, but the patient considered his voice as good as ever.

For the accompanying photograph which gives a clearer idea of the foreign body than could be conveyed by any description, I am indebted to my friend Dr. W. P. Brandegee.



Following the report of the case, Dr. C. H. Knight, the chairman, remarked:

In connection with a report of foreign body in the larynx, I present a tooth-plate which was carried in the laryngo-pharynx of a patient for the period of sixteen days. The point of special interest which I desire to mention at this time is the fact of the reproduction of tissue on the part of the vocal cords and with it the restoration of function.

This case I reported to this Section on October 22, 1889, three months after the accident occurred. As a result of the pressure and erosion caused by the tooth-plate, the posterior third of both vocal cords had been completely destroyed — it looked as though it had been cut out with a sharp curette. In contraction of the laryngeal adductors the anterior portions of the cords approximated, leaving a wide gap at the post commissure, and the voice was only a whisper. It was my opinion at the time, and so expressed, that the impairment of the voice would be permanent.

Examination a year later, however, revealed a striking change. The scooped-out spaces on each cord had been completely filled in; and from the appearance of the larynx then, one could have no conception of the damage which had actually been suffered. With this reproduction of tissue there was restoration of function. The woman spoke with a clear, resonant voice, but of a lower pitch than before the accident — in quality it approached the voice of the male.

THE FIRST VACCINATION IN RUSSIA. — On October 26, 1768, the Empress Catherine II submitted to inoculation being the pioneer of the practice in her own dominions. The preparations for the novel function were most elaborate. The lymph was supplied by a boy of seven named Markof. This boy was ennobled under the fancy name of Ospiennyi (ospa = small-pox) and brought up under the Empress's own tutelage. His descendants occupy at the present day a prominent position amongst the Russian aristocracy.

A CASE OF HYSTERICAL HIP-JOINT SUCCESSFULLY TREATED BY HYPNOTISM.[1]

BY FRANK E. PECKHAM, M.D., PROVIDENCE, R. I.

THE case which I shall report this evening occurred at the Rhode Island Hospital, in the service of Dr. George D. Hersey; and I am indebted to him for the privilege of treating and also of reporting it.

The patient is a girl, eighteen years of age. The mother of this girl is a nervous woman, and during her younger days was subject to nervous crises which took the form of "crying spells," but she gradually outgrew them.

The patient had always been subject to "crying spells," having had them every day and often, several times a day; and was considered a very nervous child. When eleven years of age she fell over a stone wall. The foot and leg swelled, and she was laid up two months. There was complete recovery from this accident, and her usual good health continued until July, 1892.

On July 5th, while working in a woollen mill, having left her work to go across the room, she fainted away, and remained unconscious for a short time.

Upon recovering consciousness, a pail of water was standing beside her, which had probably been brought for the purpose of sprinkling her with cold water, and she at once came to the conclusion that she had stumbled over this pail. In falling, the right hip and side of the head, were injured; but patient was able to walk home. She remained in bed two days, and resumed work again on the third day.

There was no trouble from the hip until the last of August (about a month after the accident), when it began to be painful and tender, and to keep her awake at night. It was at this time that medical aid was first sought.

The hip was painted with iodine every night and morning for a week. This did not blister the skin, nor was any benefit derived. At another time a strong liniment was prescribed for the purpose of blistering. Her mother applied the liniment on herself, and the result was a blister; but on the patient it failed to act, and again there was no benefit derived from treatment.

In December she was carried to the Rhode Island Hospital, Out-Patient Department, was given medicine and advised to go home and remain in bed for ten days. She remained in bed for about a week, and at the end of the ten days returned to the hospital. There was some slight improvement. Patient could walk a little, but would fall after a few steps had been taken.

The pain was growing worse all the time. Unable to sleep at night, several "crying spells" every day, and in the latter part of December was totally unable to walk and remained in bed all of the time. The parents now gave up all hope of ever seeing her walk again. Various diagnoses had been made, namely, nervousness, fracture and hip-disease.

Finally, on April 24, 1893, she entered the Rhode Island Hospital as an in-patient in the service of Dr. Hersey. I saw her for the first time during the first week in May. She was thin and anæmic, and apparently of a very nervous disposition. On manipulating the leg she would groan continuously, but by distracting her attention and moving the leg before she was

[1] Read before the Providence Medical Association, September 4, 1893.

prepared for it, the muscular contractions were overcome and pretty free motion obtained. With the thigh flexed on the body and the leg flexed on the thigh, external rotation could be made slowly until the leg was nearly on a level with the body. With the patient lying flat on the chest there was no limitation to extension, both of which movements would be good tests for hip-disease. There was no crepitus on motion. There was no thickening around the joints. Placebos controlled pain, and produced sleep at night.

It was very evident, with the family history, and with the previous history of the patient, that the case was one of hysterical hip.

Having previously had success with hypnotism in other cases (of a different class, however), I determined to try this method of treatment.

The first *séance* was on Monday, May 8, 1893. I began by having a talk with the patient, in the presence of a third person, Dr. Perkins, the house-officer. I explained what I proposed to do, and told the patient that in order to be successful she must not oppose me in the least, and must do everything she was told. She was anxious to get well again, and promised to be obedient. I then proceeded to hypnotize, but was only able to obtain the first degree of somnolence: that is, patient remained with eyes closed and repeated after me everything she was asked. At this *séance* all the pain was made to disappear, and patient was told there was not going to be so much pain at night, and that she would sleep better.

May 9th. Slept better last night than any night since entering hospital. Complains of some pain. Again only the first degree of somnolence obtained. Pain caused to disappear, and told she was improving.

May 10th. Improvement continues; still some pain, but not enough to cause discomfort. First degree of somnolence again obtained, and the usual suggestions made.

May 11th. Did not sleep as well as usual last night. When house-officer made the evening visit, he found her quietly crying, "on account of the pain."

May 12th. Feels worse to-day than for two or three days, but is very obedient. The usual suggestions made.

May 13th. This was the sixth *séance*; and for the first time I succeeded in putting her completely under the hypnotic influence. She was told to remain asleep for a half-hour, and then to wake up and ring a bell which had been placed by her bedside. The bell was rung in about a half-hour, and patient said she had been asleep.

May 15th. Patient had now been hypnotized six days in succession, and I had steadily gained in the ability to control her. This afternoon, as previously arranged, I found the patient sitting in a wheel-chair. She was complaining of considerable pain and also of being dizzy. I was told by the house-officer that the last two days had been the worst since entering the hospital, and the pain had been so severe as to demand an anodyne. Not very encouraging certainly, after a week of treatment. Hypnotized in the chair. Pain and dizziness caused to disappear, and when all through said she felt perfectly well.

As prearranged, I found the patient dressed and sitting in the chair and feeling better than for two days. Hypnotized her, and told her to walk across the room. She opened her eyes and started across the floor. With the hand on her hip, she hobbled across the room, nearly falling two or three times. I constantly stroked her forehead, and supported her when there was danger of falling. After returning to the chair she looked very pale, but there was no groaning or expression of pain; and when the *séance* was finished, she felt perfectly well. This was the first time she had borne her own weight in about four months.

May 18th. Walked across the room easily, but there was considerable of a limp.

From this time there was constant improvement every day. Slept well and had nothing to complain of; but the limp remained.

To see her walk, it looked as if one leg was really shorter than the other; and upon being questioned, she said such was the case.

Consequently the legs were measured, both by Dr. Perkins and myself. The measurements being made over the clothes were, of course, not accurate; but we both made the leg longer than its mate, instead of shorter. Without making skin measurements I took advantage of this fact, and told her that the leg was a little longer, and that she really ought to limp with the other leg.

On May 26th, after being hypnotized in all eleven times, and having no subjective symptoms whatever, the patient was discharged cured; the only objective symptom being a very noticeable limp.

On June 2d, patient reported at the out-patient department looking very much better, not nearly so anæmic, and the limp only very slightly noticeable.

On June 9th, patient reported again without any limp whatever, feeling and looking perfectly well. At this time careful skin measurements showed the legs to be exactly equal in length.

In August, nearly three months after leaving the hospital, patient was in excellent health in every way.

I have reported this case in detail to show what hypnotism may do in these cases, even though at first they become apparently worse; and to show that hysteria, whether general or local, being a disease most intimately associated with the will and the mental faculties, may be treated through the same channels.

Reports of Societies.

CAMBRIDGE SOCIETY FOR MEDICAL IMPROVEMENT.

ALBERT H. TUTTLE, M.D., SECRETARY.

MEETING of May 22, 1893.

DR. S. E. WYMAN, of Cambridge, read a paper on

ANTHRAX FACIEI, WITH REPORT OF A CASE.[1]

DR. DRIVER: For some time anthrax was not uncommon in Dedham, where it occurred in mattress-makers. The first cases were nearly all fatal, later but few of them died. A patent smudge was invented for treating the hair before handling; and it was supposed that this destroyed the germs and was preventive of the disease. For the past five years not a single case has occurred.

DR. CLARK saw several of the Dedham cases and thought the disease took a retrograde action, the infection becoming less and less virulent until it finally exhausted itself. He thought one should accept the

[1] See page 413 of the Journal.

statement that the disease was contracted from well-cooked meat, with considerable doubt. The chances of a dirty cook contaminating articles of food after they are prepared for the table, as was long ago pointed out by Dr. Holt, are very great, and the cases attributed to the action of roasted bacilli can be more reasonably explained by this means.

DR. TUTTLE saw a case which occurred in the practice of Dr. Marcy in its later stages. Different specimens of the discharge were examined by Dr. Marcy and himself, that of the former contained the bacillus, whereas that which he examined contained only spores, a fact which shows the need of examining material from different parts of the lesion. The manner in which the disease extends in lines through the subcutaneous cellular tissue, in various directions, radiating out from the primary lesion, which usually remains small, much smaller than that of ordinary carbuncle, serves as a prominent feature in distinguishing the disease at a late period.

DR. MARCY said the patient above referred to went to Florida in full health, that a pimple developed on the left side of the face, near the nose, and ran rapidly through the stages already described, until when first seen by him on the eighth day of the disease, the whole side of the face, including both lips, the angle of the jaw and anterior temporal regions, and the orbit of the right side was involved and freely suppurating. The diseased area was cut and curetted, and large quantities of iodoform rubbed into the diseased tissues. One of the worst symptoms of the case was found in the urine which was loaded with albumen and contained casts.

DR. WYMAN, in closing, said that the disease did not run out in Russia, where it remained as virulent as ever. He also referred to Pasteur's method of attenuating the virus so that it could be introduced into animals, thereby producing immunity from the disease. Dr. Beach, of Boston, was the first in this region to inject antiseptic solutions subcutaneously for the cure of carbuncles, in 1888; but it has been done by the same method before him in similar conditions, using solutions of carbolic acid, however, instead of corrosive sublimate, by Dr. J. R. Jarnovski, of Vasilsursk, in 1876.

DR. T. E. CUNNINGHAM read a paper on

PUERPERAL ECLAMPSIA.[2]

DR. DRIVER: Six cases of eclampsia, all in his own practice, occurred during his first 1,000 deliveries. To adopt routine treatment was disastrous, yet it was frequently done by the young practitioner.

Case I was treated with chloral and morphine. The mother was unconscious for four days, during which time there was copious perspiration; but she finally recovered. In Case II, both mother and child survived. Case III was a breech presentation, and ended fatally. Case IV admitted three fingers in the os; and, following the rule to deliver when such is the case, both mother and child were saved. Case V died quickly. Dr. Driver thought, if bleeding had been resorted to, the patient might possibly have been saved. The abdomen was quickly opened, with the hope of saving the child, but without avail. The result of the remaining case was not recalled.

DR. HOOKER had two cases one of which remained unconscious four days.

[2] See page 410 of the Journal.

DR. BRYANT had seen a case where pain in the pit of the stomach, before the onset of convulsions, was a prominent symptom; and he had heard of a similar case in the practice of another physician.

DR. A. P. CLARKE had noticed that those cases where there was a great excess of albumen were apt to prove fatal, especially when complicated with retinitis and generally debility. He recommended the use of chloroform in these cases, since ether had a bad effect on the kidneys.

DR. A. H. TUTTLE had seen four cases, three in consultation and one in his own practice. The first was a multipara, in the practice of Dr. Norris. Manual dilation was begun at 7 o'clock, P. M.; but, owing to a very rigid condition of the os, it was not completed sufficiently to admit delivery until noon the following day. The mother made a good recovery, but the child died in a few hours. The second case was in a colored girl, a primipara, unmarried, and about seven months' pregnant. Medicines were given to restore the functions of the skin, kidneys and bowels; but the patient died comatose within twelve hours of the onset of the trouble. The third case was in the practice of Dr. Pidgin. She was a multipara, near term, whose urine had been examined several times for albumen during the pregnancy and just before the convulsive movements supervened, but with negative result. The os was easily dilated, and the child (alive) delivered with forceps, the mother making a good recovery. The fourth case occurred in the practice of Dr. Slayter. This was a multipara, of robust constitution, about six months' pregnant. Labor was instituted, and the patient made a good recovery.

DR. MARCY'S first case died. Two cases were saved, he thought, by bleeding, one where the convulsion occurred four days after delivery. In a fourth case, a primipara, there was rapid abdominal distention; and at eight months the urine contained casts and albumen. The artificial delivery of twins was performed, but both mother and children died. The autopsy showed fatty degeneration of the renal capillaries, with the presence of thrombi. In a fifth case, that of a young bride, eight months' pregnant, the urine was examined for albumen and casts, but negatively; yet the patient died suddenly three days later. He thought that most work in obstetrics was poorly paid for. The fee should be increased, and more time devoted to the examination of the urine and to the care of the patient during the whole period that the mother is carrying the child.

AMERICAN NEUROLOGICAL ASSOCIATION.

NINETEENTH ANNUAL MEETING, LONG BRANCH, N. J. JULY 25, 26 AND 27, 1893.

(Continued from No. 16, page 401.)

THE ANATOMICAL CHANGES IN THE SPINAL CORD IN AN OLD CASE OF INFANTILE PARALYSIS.

DR. JOSEPH COLLINS, of New York, presented numerous sections of the spinal cord, and reported the history of a case of infantile paralysis of long standing.

PROGRESSIVE MUSCULAR ATROPHY.

DR. C. M. HAMMOND, of New York, exhibited microscopical specimens, and gave the pathological report of two cases of progressive muscular atrophy, and

referred to the fact that considerable confusion is occasioned by the misapplication of the term "peroneal type" to a disease totally dissimilar to the one under consideration.

The first patient was a woman forty-six years of age, without history of gout, rheumatism or syphilis. In the fall of 1889 she stumbled over a chair, bruising the right shin slightly, and a few days afterward she was unable to walk as well as formerly. Soon after, there was marked weakness of the flexors of the foot and the extensors of the toes. By October, 1890, there was complete paralysis of the entire right leg, with reaction of degeneration, loss of power and electrical contractility of the anterior tibial muscles of the left leg, and atrophy and loss of power of the thenar and hypothenar muscles of the right hand. Gradually but rapidly the other extremities became involved, and ultimately the abdominal and intercostal muscles were affected. She died suddenly from either cardiac or respiratory paralysis. The sections of the cord showed sclerosis of the pyramidal tracts and atrophy of cells in the anterior horns, and degeneration of Gower's column throughout its entire extent. The conclusions to be drawn from the clinico-pathological study of this case would be that the muscles of the hand were supplied by the mesial group, and the muscles of the forearm from the anterior group of cells in the anterior horn. In the second case, seen in 1882, the disease only affected the muscles of the left thumb. He had the opportunity to watch the case to its termination, in 1893. It ran the usual course, and was in every way typical. At the time of death all of the muscles from the level of the arm-pits upwards, except the facial muscles, were atrophied, as well as those of the upper extremities. She became maniacal, and finally died from exhaustion. The cord and medulla were examined, and the changes were identical with those described in the preceding case.

He concluded that these cases demonstrate that progressive muscular atrophy is due to a degeneration of the cells in the anterior gray masses and the anterolateral white columns. Also, that it is superfluous to divide progressive muscular atrophy into different types, because the disease does not invariably begin in the same group of muscles.

The last two papers were discussed together.

DR. MILLS agreed with Dr. Collins's views as to the arrangement of cells presiding over the flexors and extensors. He suggested examination of the nerve roots at the extreme limit of the lesions.

DR. SACHS thought that such a careful pathological study would ultimately lead to better results than the usual clinical methods. That the Aran-Duchenne type was of spinal origin there could be no doubt, but he was not certain that the case of Dr. Hammond represented the peroneal form of progressive muscular atrophy, as described by Charcot, Tooth, Hoffman and himself. If the case were such, the findings in the spinal cord would have been of great importance. He was not yet certain whether the peroneal form represents a spinal disease or a peripheral affection.

DR. PUTNAM had a case in an adult where there was rapid destruction of gray matter throughout the cord. Despite the violence of the process, portions of the interior and lateral cell groups were preserved.

DR. PRESTON inquired as to alterations in the blood-vessels. He believed this was the primary alteration in the pathological changes. He also asked if Dr. Collins had examined cross-sections of the mixed nerves.

DR. GRAY thought it very difficult to make a positive clinical diagnosis between the central and peripheral portions of the lesion. This was often illustrated in the class of cases reported by Dr. Hammond.

DR. COLLINS, in closing the discussion, said that his investigations extended over greater ground than his paper suggested. There was diminution in the size of the vessels, but no evidence of atheroma. The mixed nerves were not examined. He thought the hæmotoxylon stain useless for a study of the cellular structure.

DR. HAMMOND concluded that the peroneal type was simply progressive muscular atrophy beginning in the peroneal muscles.

OPTIC NEURITIS, BLINDNESS, DEAFNESS AND THE KNEE-JERK IN CEREBELLAR DISEASE.

DR. F. X. DERCUM, of Philadelphia, read a paper with this title. He thought many of the symptoms of cerebellar disease were both inconstant and variable. They are difficult of explanation and frequently impossible to correlate.

He desired to call attention more especially to the optic neuritis, the blindness, the deafness and the modifications of the knee-jerks.

He related the history of seven cases in which the above symptoms were present.

It is a matter of common experience that very high grades of neuritis may exist without marked impairment of vision. It would seem, therefore, that the added symptom of blindness gives a special significance to the optic neuritis found in these cases. It would appear that for some reason if we have optic neuritis at all in cerebellar disease, that it is apt to be intense in character, and further that it is likely to be associated sooner or later with total blindness.

The proximity of the quadrigeminal bodies has naturally suggested itself as in some way explaining this blindness. The ataxia and titubation present in these cases refer us at once to disease of the vermiform process. A consideration of anatomy, as well as the autopsy of Case III, will show that if a growth be situated in the vermiform process, especially anteriorly, and that if this growth continues to enlarge, it will sooner or later press upon the superior cerebellar peduncles and very probably upon the quadrigeminal bodies themselves. When we recall the relation of the fibres of the optic tract to the primary optic centres, we can readily understand how if pressure or irritation occur at this point a neuritis should be a consequence. Further, the irritation being direct, we can, perhaps, understand why the neuritis should be of a high grade, and, finally, also why this neuritis should be associated sooner or later with total blindness.

With regard to the deafness which is present in some cases of cerebellar tumor, and which was absolute in Case III, it may perhaps be explained in a similar manner. The studies of Spitzka, Monakow and others have made it extremely probable that the posterior quadrigeminal bodies stand in the same relation to the auditory fibres as do the anterior to the optic fibres. It would simply be necessary, therefore, to our explanation that the pressure involve these structures, in order that deafness should be a symptom.

When we turn our attention to the knee-jerk, we meet with a problem of peculiar difficulty. It would

seem, that one would be justified in accounting for the loss of knee-jerk when observed in disease of the cerebellum by the loss of muscle tonus.

It is extremely probable that lesions of the cerebellum act as do lesions elsewhere, in one or two ways, that is, either by destroying tissue and thus destroying function, or by acting as irritants. It is perhaps in this way that we can account for the fact that in some cases of cerebellar disease the knee-jerk is absent, and in others present or exaggerated.

Dr. Gray hoped that Dr. Dercum's explanation of the symptoms would prove true, and asked if the pupillary reflexes had been observed.

Dr. Dercum replied that when the disease had advanced there was loss of reflex action to light.

Dr. Putnam spoke of a case of long-standing optic atrophy and practically no other symptoms. Although the optic neuritis persisted for two years, the autopsy showed a cyst and tumor of the cerebellum.

Dr. Preston asked if distinct loss of muscular sense existed in Dr. Dercum's case. He had noted this symptom in two patients. In four of his cases, the knee-jerks were irregular, disappearing and occasionally returning.

Dr. Knapp said that in all of his cases confirmed by autopsy, there was neuritis or optic atrophy. In one case where cerebellar tumor was suspected neuritis had not developed. Blindness had not been so constant. In another case the light reflex was lost when the pupils became dilated. Pressure on the corpora quadrigemina was most likely to produce blindness. He had never noted deafness. As to disease of the middle lobe of the cerebellum being responsible for the ataxic gait, he thought this view untenable.

Dr. Leszynsky, of New York, said he had observed a number of cases, two with autopsy. He thought the concomitant basal meningitis had much to do with the production of the optic neuritis, by extension of the inflammatory process along the nerve sheath. In many cases the neuritis was a late symptom. Where the neuritis or optic atrophy was accompanied by loss of light perception the pupillary reflex was always absent.

Dr. Dercum did not believe the neuritis due to pressure, but more dependent on the location of the tumor. In his cases the neuritis was always of high degree. Neuritis, blindness and deafness indicated pressure on the mid-brain. He would look for cerebellar symptoms where the knee-jerk was variable.

A NEW METHOD FOR THE REDUCTION OF DISLOCATION OF THE CERVICAL VERTEBRÆ.

Dr. G. L. Walton, of Boston, in reading a paper upon this subject, said that since the publication of sixteen cases previously coming under his notice, he has seen several of similar character, leading him to the belief that this condition is not rare, though frequently overlooked. Reduction by extension usually attempted is unsuccessful. Spontaneous reduction has occurred, showing that direction is more important than force. This fact led him to the discovery of the method theoretically correct, as shown by manipulation of the vertebræ, and by experiments upon the cadaver made by Dr. Richardson of Boston and himself. The method has been recently demonstrated in practice by Dr. Beach, at the Massachusetts General Hospital, with successful result.

In illustration of the method, suppose the left articular process of one vertebra has slipped forward over that of the vertebra below, and fallen into the depression anterior to the articular process. This bends the head to the left, and turns the face to the right. The reduction is accomplished by extending the head diagonally backward to the right, so as to elevate the articular process, after which rotation to the left replaces the displaced vertebra. The transverse processes on the right act as a fulcrum. The ligaments which hold the vertebra firmly in the false position make no opposition to this manœuvre, which requires no force. In bilateral dislocation the same movements should be made, first on one side reducing it to unilateral displacement, then on the other.

Dr. Putnam said that cases are more numerous than supposed, and cited the instance of a man injured by a fall, who died through carelessness in his removal to a hospital.

Dr. Sachs asked if this method would be practicable in other than recent cases.

Dr. Walton replied that the operation was performed in one case of about ten days' standing. A case in which bilateral dislocation was produced spontaneously, with perfect recovery, would lead him to recommend the attempt at reduction, even after a number of months, should there be no doubt as to the diagnosis.

SECOND DAY. — WEDNESDAY.

ACROMEGALY, GIGANTISM AND FACIAL HEMIHYPERTROPHY.

Dr. C. L. Dana, of New York, read a paper with this title, and reported the history of a case of acromegaly, with autopsy; also a case of gigantism, or somatomegaly, with some symptoms of acromegaly. The giant had a unilateral facial hypertrophy.

The first case was that of a full-blooded Bolivian Indian, who was exhibited as a giant. He was thirty years old; height six feet, seven inches; weight three hundred pounds. He had an enormous development of the malar and frontal bones. His thorax measured fifty inches in circumference. He died suddenly. On autopsy, the brain was found normal; weight fifty-five ounces. The pituitary gland was greatly enlarged, measuring one inch in diameter. Thyroid weighed four ounces. The feet and hands had increased in circumferential measurements. The brain presented interesting peculiarities of fissuration.

The second case was a professional giant, seven feet, five inches tall; weight three hundred fifty pounds; age nineteen years. His muscular development was feeble. He had several symptoms resembling those of acromegaly. His most curious condition was a progressive unilateral facial hypertrophy due mainly to osseous growth. It suggested an acromegaly attacking only half of one extremity. Only eleven cases of this affection are on record.

Dr. Dana said that acromegaly was sometimes associated with gigantism. He thought that many so-called giants were instances of pathological growth rather than excessive physiological development. There was much evidence to show that the pituitary gland had some function in these disorders. Among twelve autopsies, this gland was found enlarged in ten.

Dr. Dercum said that acromegaly is not associated with increase in the length of bones but in their width. He regarded Dr. Dana's case as one of gigantism with acromegaly superadded.

Dr. Gray considered it a question whether acrome-

galy and gigantism are not identical. We are still in the dark as to the pathology of acromegaly. He thought the cases presented did not warrant Dr. Dana's conclusions.

DR. COLLINS looked upon them as two separate diseases. In gigantism the changes are in the cellular structure of the diaphyses and epiphyses, principally the former. In acromegaly the changes are confined to the epiphyses. Probably the disease of the pituitary glands stands in proper relation to acromegaly. Much depends on the method of examination. He had destroyed the gland in animals to see if acromegaly developed, but all died. He thought giants may suffer from acromegaly, and regards it as a degenerative disease.

DR. BRILL, of New York, asked what structures in the brain were usually involved.

DR. COLLINS answered, the glandular structure of the pre-hypophysis.

DR. DERCUM expressed the view that as the other ductless glands are so often enlarged in acromegaly, to select a single gland as being enlarged seemed precipitate. No doubt the pituitary body may have important functions to subserve.

DR. PUTNAM said that investigators have destroyed the gland in animals, producing polyuria, thirst and debility. In view of the small number of autopsies, we cannot dogmatize. The gland was found normal in three out of nine reported cases. He had seen temporary improvement in one case under the administration of thyroid extract. We are dealing with abnormities of development, and cannot expect to discover lesions as the cause. In ten autopsies that have been made the thyroid was wasted in 77 per cent.

DR. SACHS was of the opinion that both conditions are related. Gigantism is a form of physiological excess while acromegaly is a distinct morbid condition. He did not attach much importance to the influence of the pituitary body, but thought our knowledge of the exact etiology and pathology is still in abeyance.

DR. WEBER, of New York, had seen two cases. One had symptoms of myxœdema. He was inclined to believe gigantism to be excessive physiological growth.

DR. MILLS had found at autopsy a tumor destroying the pituitary gland, but there was no acromegaly.

DR. DANA, in closing the discussion, said we did not know the functions of the pituitary gland in its relation to acromegaly, but it was certainly of some importance. He still believed in the clinical relationship between gigantism and acromegaly, but looked upon gigantism as an irregular type. He regarded gigantism as a pathological condition. The thyroid was not enlarged in his case, but the pituitary gland was.

THYROIDECTOMY IN THE TREATMENT OF GRAVES'S DISEASE.

DR. J. J. PUTNAM, of Boston, read a paper on the treatment of Graves's disease by thyroidectomy. After calling attention to the fact that this operation has been done some forty times, mainly by German surgeons, with but two deaths and a very large percentage of cures or improvements, the speaker narrated a case from his own experience.

It was that of a young woman suffering from a typical form of Graves's disease, of nine months' standing, and with a rather large goitre. The right lobe and most of the isthmus were removed .During and after the operation the patient's pulse ran up very high, and for several days she lay in an extremely prostrated and apparently critical condition. She then rallied; and now, at the end of six months, her condition is decidedly better than before the operation, though she is far from being cured. The remaining portion of the tumor has not shrunk, and still shows a marked tendency to vascular enlargement. The voice was reduced to a whisper under the immediate influence of the operation, but has now nearly recovered its natural tone. This is not an unusual occurrence.

Dr. Putnam analyzed the reported cases from the following points of view: the immediate and remote effects of the operation (including the mortality-rate after operation for goitres in general), the influence of the character of the tumor on the result, the degree and persistence of the improvement in favorable cases, the character of the operation.

Finally, the question as to the nature of Graves's disease, and the relation of the other symptoms to the goitre, was discussed. It was pointed out that this relationship was probably based on the fact that the thyroid has important vascular functions.

Strong emotions are capable of causing temporarily most of the symptoms of Graves's disease.

The reasonableness of the operation lies in the fact that in Graves's disease certain nervous centres are in a state of extreme irritability. Any means which will cut off a considerable number of excitations from reaching the unstable centres is likely to be beneficial by securing for them a partial, physiological rest. There are various means, such as complete rest, the treatment of the naso-pharynx, etc., which may do this in a measure, but no one means is so effectual as thyroidectomy. The operation, is, however, attended by a slight risk of death, and by a greater risk of considerable temporary prostration and laryngeal paresis.

DR. DERCUM had recorded the case of a man with all the symptoms of Graves's disease but the enlarged thyroid.

DR. WEBER had noted recovery in a patient possessing all of the characteristic symptoms, under the persistent use of iodide of potash. The dose was gradually increased to three drachms daily.

DR. E. D. FISHER thought it would hardly seem probable that in Graves's disease the enlarged thyroid can be considered as acting in a mechanical way in producing the symptoms. He had seen many cases in Canada, in whom apparently no symptoms were produced. These persons continued in their regular occupation without discomfort.

DR. PUTNAM, in closing, said that a large number of instances of goitre, without symptoms, had been reported with autopsies. Such children in particular had suffered from debility, and there was dilated right heart. He gave a *résumé* of our present knowledge of Graves's disease, both experimental and clinical. He concluded that we have not sufficient data to establish a physiological basis for the disease.

(To be continued.)

ECCE THYROID! — A correspondent writes to the *Medical Press* as follows: "Having been recommended to try the thyroid gland treatment for inveterate psoriasis, I ordered a thyroid gland from the family butcher. He says he knows 'what IT is because there is a demand for IT just now.'"

Recent Literature.

Appendicitis and Perityphlitis. By CHARLES TALAMON, M.D. Translated by E. P. HURD, M.D., pp. 210. George S. Davis. 1893.

Appendicitis, "the new disease," as the daily press is apt to designate it, has become a term both well understood by the physician and dreaded by the community. The numerous contributions to the literature of the subject during the past eight years form a mass of titles very discouraging to one who attempts to make a thorough investigation of what has been accomplished. It is, therefore, with gratitude that we call attention to this monograph which offers a substantial help to all who desire to acquire more than text-book information on this interesting and important subject. Dr. Talamon has no intention of giving merely an historical and analytical statement of what has been accomplished, but he is earnest in bringing forward certain personal views which will carry more or less weight. Some of them may be briefly referred to with the statement that they are given no undue prominence and form merely a part of the volume which is intended to represent a comprehensive consideration of the whole subject.

His theory of the origin of an attack of appendicitis is based upon the supposition that an intestinal concretion suddenly penetrates the appendicular canal and there gives rise to the incipient pain and subsequent disturbances. He believes that the concretions are formed in the cæcum, because they "are perfectly round." This statement is in opposition to the daily observations of elongated, oval, flattened or cylindrical concretions in the appendix, both in health and in disease.

The author apparently forgets that the hernial protrusions of the mucous membrane of the large intestine are not present in the cæcum and that when found, even in large numbers, in the usual site, the descending colon, they rarely produce any disturbance.

The important distinction is rightly made between a relapsing and a recurring appendicitis. In the former the intervals between the attacks are so short that the disease is always present; it is a chronic appendicitis with exacerbations and remissions. In the recurring appendicitis each recurrence takes place after an interval of months or years of freedom and has all the characteristics of the original attack.

It is in this connection that the author's consideration of appendicular colic is so important. This symptom has often led to the diagnosis of an acute appendicitis, to an immediate operation and to the extirpation of an appendix free from any obvious anatomical change. The mistaking of appendicular colic for perforative appendicitis should be the bugbear of the surgeon as its opposite should be the dread of the physician. According to Talamon "chronic relapsing appendicitis is rather an infirmity than a malady menacing to life."

The treatment of appendicitis should depend upon the belief in an existing or threatening perforation. Our author says that in the immense majority of cases our knowledge as to the presence or absence of the perforation is made clear by the third or fourth day. He believes, however, that it is almost impossible, during the first week to decide with certainty upon the presence of pus. Hence the surgeon should not be called for till the seventh or eighth day. This rule, however, is not absolute as he recognizes the importance of considering each case by itself.

"*Theoretically*, surgical interference is indicated as soon as the diagnosis of perforative appendicitis is made. *Practically*, this interference should be immediate in the forms attended with peritonitis which becomes general from the outset. . . . It ought, in our judgment, to be put off till the eighth or twelfth day in the forms with partial peritonitis, as the diagnosis of suppuration cannot be made certain during the first week, and the chances of recovery seem to us the greater the more thoroughly the purulent collection is encysted."

It is satisfactory in a book written by a foreigner to find the author more than willing to show an appreciation of the work of American physicians and surgeons in redirecting attention to the appendix as the frequent cause of serious and fatal disease. His monograph bristles with American names and full credit is assigned for their work.

Dr. Talamon has given an admirable statement of our present knowledge of the subject, and Dr. Hurd is to be complimented on the excellence of his translation. If the volume had been better published, its cost would have interfered with its usefulness.

The Law of Cremation; An Outline of the Law Relating to Cremation, Ancient and Modern. By AUBREY RICHARDSON, Solicitor. London: Reeves & Turner. 1893.

The primary and special purpose of this book is to state in explicit terms the legal status of cremation in the various civilized countries where it is practised, and the regulations which have been instituted to govern its administration. The work is something more than this, however, for it gives a concise history of the whole subject, showing the widespread adoption of the funeral pyre by the earliest nations of antiquity for the disposal of their dead, the distinct influence of Christianity in opposing the custom and in favoring inhumation instead, and the more recent reaction toward a return to the earlier practice of incineration, but with greatly improved methods and ampler safeguards. The regulations which have been ordained by various governments, or by the cremation societies themselves, to reduce to the lowest terms the possibility of destroying evidence of crime when a dead body is incinerated, are fully set forth and appear to be in every instance entirely adequate. The volume is a seasonable and interesting contribution to the literature of the subject and will prove particularly acceptable to those who advocate the reform which cremation is designed to bring about.

The Throat and Nose and their Diseases. With 120 illustrations in color, and 235 engravings by the author. By LENNOX BROWNE, F.R.C.S.E., Senior Surgeon to the London Throat and Ear Hospital, etc. Fourth edition, 734 pages. Philadelphia: Lea Brothers & Co. 1893.

The fact that the third edition of this book was so soon exhausted that it has been out of print for nearly two years is sufficient indication of its popularity.

The principal additions in this edition are in the chapters on nasal deformities, and on the membranous affections of the mucous membranes. The number of pages has not been increased, and the book will undoubtedly still hold its position as a safe and practical text-book, well arranged and of convenient size.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, OCTOBER 26, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

PHYSIOLOGICAL CHEMISTRY AS A PART OF MEDICAL EDUCATION.

IN a paper read before the Section in Pedagogy of the Pan-American Medical Congress, Prof. R. H. Chittenden makes an earnest plea for a more thorough training in physiological chemistry as a part of medical education. Biological studies are the essential substructures on which the study of medicine rests, for the profession demands at present, men, not alone trained in the art of medicine, but of high intellectual attainments, of broad and scholarly habits of thought and observation, and endowed with the power of logical reasoning. No training is better fitted to educe these traits than the careful study of biologic processes — not by the reading of books or lecture-notes, but by actual observation and appreciation of the processes as seen in laboratory work. The important and close relation of biology to medicine is more appreciated every year; and each year the common changes of animal and vegetable processes are found to depend upon definite and fundamental chemical formations.

At present the study of physiology in many medical schools is incomplete. It consists mostly of muscle and nerve physiology, with demonstrations of blood-pressure and kindred experiments designed to illustrate mainly the mechanical side of physiology. Important and needful as this is there is another side of physiology which, in this country, has not been cultivated as it should be — namely, the chemical side of physiology, or physiological chemistry. It deals with quite a different series of problems from those pertaining to so-called pure physiology, but they are as fundamental, if not more so, than any other single line of physiological work.

Physiological chemistry means more than the mere application of chemical analysis to a determination of composition, it is the study of the processes of functional activity going on in the body. "The unsymmetrical development in medicine, especially of the last twenty years, by which the sovereignty of morphology has been attained, giving undue weight to anatomical methods of investigation, has reached its climax, and the clinicians even are now looking to physiological chemistry to aid them in unravelling many of the hidden processes of life, thus hoping to gain clews to clearer methods of diagnosis and more rational lines of treatment."

As the teaching of medicine has become each year more clinical and direct, so should the study of physiology, particularly in its chemical relations, be taught by practical laboratory work in small sections, each with a trained instructor. A course, to be worthy the name, should extend at least through six months, with an average of fifteen hours of laboratory work a week. Such a course can be advantageously taken only by men who already have knowledge of general, analytical and organic chemistry, physics, anatomy and histology, together with more or less familiarity with general physiology.

To the plea that medical students cannot afford so much time for a study only indirectly connected with medicine, Prof. Chittenden replies that the time is well spent, especially at present, when there is need of more properly trained physicians rather than of men holding diplomas of medicine.

The details of such a course will vary with the instructor; but the more thorough and general the work, the better for the student. The various albumens and their changes and decomposition products, the reactions and composition of muscular tissue, "in nerve tissue the chemical characteristics of the various elements and the chemical differences between the gray and white matter, are to be noted; the neuroglia, neurokeratin and brain proteids are studied, while chemical and anatomical relationships are compared in this as in all other tissues examined." In digestive and excretory functions, the range of study opened is wide and directly applicable to the practice of medicine. Such laboratory work is perhaps best accomplished before the student begins his medical course proper.

"But the medical school itself can well afford to establish a thorough course in this subject; indeed, no medical school at the present day can afford to be without such a course of study if it hopes to rank with the leading institutions of the land, or aims to provide instruction of the highest and fullest type."

MAY TYPHOID FEVER ARISE *DE NOVO*.

DR. HUBERT WORK, of Pueblo, Col., writes to the *Medical Record*, September 9, 1893, his experience with typhoid fever on the cattle ranches of Colorado. He has known severe outbreaks of this disease under circumstances where he believes a *contagium vivum* could not be traced. At the same time, pollution of the drinking-water seems in all cases to have been a factor. In one instance, twelve persons in one locality took the fever in a grave form; all these had used drinking-water from a well adjoining a pit in which a quantity of decaying vegetables, a dead cow, etc., had been buried. In other instances the well

water was known to have been contaminated by the washings of manure heaps. In two cases, typhoid fever was contracted after eighteen months' residence on a newly-located ranch; the water-supply, reported as good, was taken from new wells fifty feet deep.

Dr. Work is inclined to reject all modern germ theories of typhoid fever and to commit himself to the belief in the *de novo* origin.

The Eberth bacillus has now been found too constantly present in the fæcal matters, intestinal lesions, spleen, etc., of typhoid patients to render probable the theory of accidental concomitance, and had Dr. Work been able to search for these organisms in the cases he reported, he would doubtless have found them in abundance, if they were genuine cases of typhoid and not merely cases of septic fever. Without such an examination and without autopsies, the diagnosis itself must remain in some doubt.

Dr. W. R. Cushing, of Dublin, Va., relates a similar case[1] of a patient living on a mountain side remote from other people, who was said not to have been out of the neighborhood for weeks, who breathed the purest of mountain air, drank from a mountain spring, where the drainage was apparently perfect. The case was a solitary one, no other member of the family was attacked, although using the same water, etc.

Whether Eberth's bacillus is pathogenic, may not be regarded yet as absolutely proved, although the evidence that it is the essentially procuring cause of typhoid is sufficient to convince nearly all pathologists. The bacillus produces a toxine to which the specific symptoms are believed to be largely due. There is increasing proof that this bacillus is propagated in drinking water, and that it develops in decaying vegetable and animal matter, in sewage, etc. Where it originates is a question applicable in common to this and all other forms of life, and one which is not yet solved.

It is now almost axiomatic that no living contagion arises *de novo*. In what preëxistent form, then, does the typhoid bacillus live?

Some bacteriologists at one time entertained the opinion that the Eberth bacillus is identical with the bacillus coli communis which it morphologically resembles. The latter is under ordinary conditions an habitual, harmless inhabitant of the intestines, only manifesting malignancy and becoming pathogenic in circumstances of impaired and lowered vitality. The ingestion of decaying, putrefying substances in water or in food offers one of the conditions of the development of virulence. Though the Eberth bacillus be not identical with the coli communis, it has been suggested that it may yet, like the latter, be a normal inhabitant of the intestines, ready on suitable occasions to become virulent. It is now known that the pneumococcus inhabits normally the saliva of many people, and the pyogenic streptococci and staphylococci have been found in the mouths and other mucous passages of persons in health.

Isolated instances of apparently autochthonous typhoid fever have not infrequently been observed and reported in the past, and will continue to be in the future. In regard to some there is legitimate doubt about the diagnosis; in regard to others the fact that the connection between the one case and a preceding case was not traced, cannot be regarded as sufficient proof that it did not exist. But, however that may be, a *de novo* origin is the least philosophical refuge from the recognized absence of exact knowledge at certain points. We as yet know very little of the life habits of most of the pathogenic bacteria.

[1] Record, October 14th.

MEDICAL NOTES.

Sir Andrew Clark Paralyzed. — Sir Andrew Clark was striken with paralysis October 19th at his residence in London. He was talking with a patient when he suddenly fell to the floor insensible. Later in the day he partially recovered, but much anxiety is felt regarding him. On the 18th he presided at the Royal College of Physicians during the Harveian oration.

Legal Effect of Pregnancy on Damages. — The Supreme Court of Wisconsin has ruled that when a married woman sustains a personal injury, and her physician does not caution her to avoid pregnancy, and there is no evidence that her injury was such that he should have done so, her pregnancy occurring after the accident, even if it prolong her injury or delay her recovery, is not necessarily, and as a matter of law, sufficient to justify a reduction of damages.

Alvarenga Prize of the College of Physicians of Philadelphia. — The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1894, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the Secretary of the College on or before May 1, 1894. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within it the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award.

A Physician's Bequests. — The late Professor Olivieri, of Naples, left a very large estate which he had acquired from his practice. By his will he made several most munificent bequests: to the Naples Blind Asylum $40,000; to the Pellegrini Hospital $60,000 and his instruments; to his friend and pupil, Dr. Mottola, who attended him in his last illness, he left $20,000.

HEART DISEASE. DISEASE. — A French physician calls attention to a new remedy, the result of accidental, among many experiments, which is the use of a supposed to be cast absorbent of a cardiac stimulant, followed by active stimulant of the heart. These remedies have been employed in the treatment of angina, and have occasionally given complete relief which is usually recognized in the history there for. The patient is ordered to abandon tobacco and to take abstinence of a diet.

JEWISH METHOD OF SLAUGHTER. — Considerable interest has been aroused in England over the method employed among the rabbis of Israel in killing beef, according to the Jewish ritual. Recently the Jews has in London [illegible] a petition against the considerable use of the new knife which is in use in the Jewish method of slaughter, called a [illegible] knife. It is claimed that the animal which [illegible] suffers [illegible] seen. Lately [illegible] testimony has given has the Jewish method has [illegible] and has a method that has been [illegible] Allen, [illegible] and other [illegible] the difference [illegible] among the sheets, has the charge [illegible] rabbis [illegible].

BOSTON.

RELAPSE AND NOT YELLOW FEVER. — The steamer Alpheus arrived in Boston from Progreso, Yucatan, on October 9th with sheets of her crew ill with what was supposed to be yellow fever, as has been reported in Boston when the vessel reached her wharf. Two men on her in the voyage. She was immediately on the sea in quarantine. No other cases have been reported. It is supposed to be relapse of yellow fever was taken in the vicinity of West Street, as in these the appears to have been malaria.

SCARLET FEVER AND DIPHTHERIA. — Since the 1st of October there has been a large increase in the number of cases of scarlet fever and diphtheria, reported to the corresponding number as month. While 18 and 17 now be urged number of cases of diphtheria, while Wards 15, 17, and 19 have no cases scarlet fever. The number of cases fever cases for the whole of the month was 173. From October 1st until the 9th the number is 167. Of diphtheria there were 9 cases in September. To the 9 October, 102 cases are entered in the ward of health's books.

REMOVAL SERVICE. — A removal service in the [illegible] of the late Dr. Hedges was held in the Boston City Hospital on Sunday afternoon. About two hundred persons were present, including members of the board of trustees of the visiting staff and the present members of the house staff, nurses and others, as well as the immediate family of Dr. Hedges. The service, which was conducted by Rev. P. S. Allen, consisted of address by Dr. D. W. Cheever, Dr. E. W. Taylor and Dr. Howe, singing of a quartette and the reading of a poem by Whittier by Miss Thaxter.

NEW YORK.

SMALL-POX. — From January 1st to October 7th, 81 cases of small-pox were reported in the city. Seven cases are recently developed on Blackwell's Island, and all the inmates of the institutions there have been vaccinated. Throughout the city vaccination is being carried on, among various classes of the community, to a large one has the Board of Health as ever before attempted.

PHYSICIANS TO CONTAGIOUS HOSPITALS. — Drs. W. H. Nettleton, S. T. Armstrong and Albert T. Sinnott have been appointed to be [illegible] to the hospitals where contagious diseases are treated. It is announced has the Board of Health will establish [illegible] in the Riverside Hospital on North Brother Island for the use, under suitable precautions of advanced [illegible] and [illegible]. All the various contagious diseases will be treated here except typhus fever, be large [illegible] which a separate is so great.

DEATH FROM SWALLOWING A SPONGE. — During the performance of an amputation of a foot at St. Joseph's Hospital, October 8th, the patient died of asphyxia [illegible] by swallowing of a piece of sponge. On account of the accumulation of [illegible] it was almost impossible to [illegible] as, and while [illegible] the sponge [illegible] was [illegible] from the [illegible] and was swallowed. After a [illegible] attempt to extract it, tracheotomy was performed, but this also proved [illegible] to [illegible] life.

Miscellany.

DR. REEVES AND THE "LEPROSY CURE."

THE courage of Dr. Reeves is really astounding. He knows the consumption merits the approval of all honest persons. The return of the grand jury [illegible] all [illegible] that will have the effect of restraining [illegible] evil [illegible] still pending. The career Dr. Reeves has shown to the cause of [illegible] deserves the support of the whole profession.

At a meeting of the Philadelphia County Medical Society held October 8, 1887, the following preamble and resolutions were unanimously adopted.

Whereas, Dr. James B. Reeves of Chattanooga, Tenn., having announced [illegible] "leper," under the "consumption" [illegible] and [illegible] that is responsible [illegible] of [illegible] to [illegible] and [illegible] of criminal [illegible] and *Whereas*, he [illegible] has published [illegible] and

Resolved, That the Philadelphia County Medical Society condemns Dr. Reeves as [illegible] and immoral [illegible] on the [illegible] and [illegible] the [illegible] to which he has been subjected.

Resolved, That the action was taken [illegible] of advertising a cure [illegible] that is to say, a [illegible] the composition [illegible] which [illegible] and [illegible]

a physician in good and regular standing; because such action is *ipso facto* sufficient to work forfeiture of membership in this or any other county medical society governed by the laws of the American Medical Association.

Resolved, That a copy of these Resolutions, duly attested with the signatures of the President and Secretary and with the Seal of the Society, be forwarded to Dr. Reeves, and that they be handed to the press for publication.

De Forest Willard, *President.*
T. B. Schneideman, *Secretary.*

A NEW DIAGNOSTIC SIGN IN TYPHOID FEVER.

Dr. Filipovich, of Odessa, calls attention to a hitherto unmentioned sign which he has observed in all the cases of typhoid fever under his care during the last two severe epidemics of typhoid in Odessa.[1] It consists in a peculiar callous appearance, of an orange or saffron yellow color, upon all the prominent portions of the palms of the hands and plantar surface of the feet, taking the place of the rosy appearance of those parts in health or the bluish tinge seen in cyanotic patients. This condition is explained by the feeble heart-action, the incomplete filling of the capillaries and the dryness of the skin in typhoidal patients.

In view of its constant and well-marked appearance in all the cases of typhoid under observation, Filipovich thinks it may well serve as a diagnostic sign of typhoid fever, in the absence of other pathognomonic signs.

Dr. Skibnevsky has also observed the constant appearance of this palmo-plantar sign during an epidemic in Moscow. The sign disappears rapidly on the establishment of convalescence.

PERSISTENT SINGULTUS RELIEVED BY LAVAGE OF THE STOMACH.

Two interesting cases of persistent singultus have been reported recently by Gallant [2] and Coleman,[3] in which other remedies failing immediate relief was obtained by washing out the stomach. The first patient, a man aged twenty-three years, after an attack of acute indigestion began to hiccough on the evening of May 29th. The paroxysms were frequent and continued for the two following days except during sleep. A saline and the administration of small doses of cocaine gave relief for two days, when the paroxysms began again and continued until the afternoon of June 6th, when the stomach was washed out with three quarts of warm water. The singultus at once ceased, and did not return.

Coleman's patient was seventy years old, and the hiccough had resisted household remedies for several days, and had been unrelieved by musk, bromides, chloral or opium. Hiccoughing continued under profound narcotism, and when the patient was seen at the end of the ninth day he was exhausted and oblivious of his surroundings. The stomach was washed out, the current bringing back no food but a quantity of dark tenacious mucus, with patches of separated mucous membrane, very much thickened. The singultus ceased immediately and the patient rapidly recovered.

Gallant, in reviewing the literature of singultus, found no previous mention of this method of relief.

[1] Revue Médicale, August 20, 1893.
[2] New York Medical Record, August 19th.
[3] Ibid, September 30th.

Correspondence.

LETTER FROM CHICAGO.

World's Fair Congress of Public Health, and Meeting of the American Public Health Association, October 10–14, 1893.

Chicago, October 15, 1893.

The meetings of these organizations, just closed, were jointly held in the Art Institute in this city, beginning on the morning of Tuesday, October 10th. It was at first intended to begin the sessions on Monday; but the overpowering interest attendant upon Chicago Day at the Fair, not only prevented an early beginning, but very largely affected the attendance at all the meetings. The average attendance at the meetings was not more than one hundred and fifty, and there were scarcely any delegates or visitors present from transatlantic countries, so that the meetings could in no sense be called international. The meeting in Mexico last year, however, had created an unusual interest among the Central American Republics, and a large number of physicians who were present at the Pan-American Congress at Washington, visited Chicago, and remained to attend this meeting. More than one-third of the papers presented were by Central and South American delegates.

The meeting was organized at 10 A. M., as a meeting of the World's Fair Congress of Public Health, and was opened with a brief address by Hon. C. C. Bonney, President of the World's Fair Congresses.

He was followed by a further address of welcome by Mrs. Charles Henrotin, Vice-President of the Woman's Branch of the World's Congress Auxiliary.

In the absence of Mayor Harrison, Dr. A. R. Reynolds, Health Commissioner of Chicago, gave a brief address.

Dr. E. Liceaga, President of the Superior Board of Health of Mexico, then addressed the Congress in Spanish, his translated remarks (in English) being distributed among the audience.

Mrs. Dr. S. H. Stevenson spoke briefly of the importance of individual attention to hygiene as one of the essential elements of success in public sanitation.

Dr. Durgin, of Boston, President of the American Public Health Association, then gave his inaugural address upon "Municipal Sanitation," which was a practical address embodying the results of twenty years long and useful experience as Chief Health Commissioner of Boston.

WEDNESDAY, 10.30 A. M.

Dr. Gihon, Medical Inspector, U. S. N., presented the Report of a Committee on "Sanitary and Medical Service on Emigrant Ships."

Dr. Gihon also read a paper which had been sent by Sir Joseph Fayrer, of London, entitled "Tropical Diarrhœa." The paper was devoted mainly to the therapeutic phase of the subject and not to the preventive treatment. His description corresponded quite closely to that of the diarrhœa which affected many of the troops engaged in the Civil War (1861–65), and which, if the records of the Pension Department may be credited, still continues to affect them. Dr. Fayrer very strongly commended a milk diet in the treatment of this disease, the milk to be used in liberal quantities.

Prof. W. T. Sedgwick, of the Massachusetts Institute of Technology, presented the subject of the "Origin and Dissemination of Typhoid Fever," in which he gave his experience in the investigations of several epidemics of typhoid fever, which had occurred in Massachusetts during 1891 and 1892. He illustrated the subject by means of elaborate maps, diagrams and heliotype illustrations. The principal conclusions to be drawn from his paper were, that a pure water-supply, a pure milk-supply, and careful attention to personal cleanliness in the management of this disease, were essential to its prevention.

WEDNESDAY. — AFTERNOON SESSION.

Mr. Allen Hazen, Chemist at the Lawrence Experiment Station of the Massachusetts State Board of Health, contributed a paper on the "Sewage-Disposal Problem in

American Cities." His paper was devoted to the rapid development of sewage-disposal in American cities, the different methods employed, and the sewage-disposal of the World's Fair (of which a more definite statement will be given in the report of Friday's proceedings).

Dr. U. O. B. Wingate, Health Commissioner of Milwaukee, gave an interesting description of the experience of that city in the "Collection and Disposal of Animal and Vegetable Waste." After several experiments in the cremation of garbage within the limits of the city, the city authorities now conducted this work at a distance of fourteen miles, the garbage being conveyed to the place of disposal in boats, by means of tight iron tanks.

Col. W. F. Morse described the process of "Disposal of the Garbage and Waste of the Columbian Exposition." All the offal of the restaurants and grounds is collected daily and conveyed to the Engle cremator near the southern border of the Exposition, where it is burned by fire.

Dr. J. Wright Mason, Medical Officer of Health of Hull, England, contributed a paper on "Cholera and its Management in Hull," a timely and practical paper written during the progress of the epidemic.

Hull is a seaport city of 290,000 inhabitants. It was visited by cholera in 1832 and 1849. In the latter epidemic one out of every 43 were attacked by the disease and 600 died. Impure water was the probable cause. At present the water is derived from wells bored in the chalk, and the other means of prevention consist of an efficient hospital for the isolation of infectious diseases, disinfecting stations, public baths, mortuary and garbage destructors, together with a system of notification of infectious diseases.

As important aids in the public management and control of the epidemic, Dr. Mason commended a cordial co-operation of the physicians, who were requested to report first cases promptly. Supplies of diarrhœa mixture were issued by the health authorities. Hospital accommodation, tents and ambulances were provided for all who should require them.

The following principles were laid down as essential to the sanitary welfare of seaport towns in regard to the possible importation of cholera.

(1) The medical inspection of vessels from infected or from suspected ports. Only the healthy should be allowed to land and these under careful supervision. Vessels should be carefully and thoroughly disinfected.

(2) The most careful attention should be given to the sanitary care of cities during the intervals between epidemics, and preparation should be made in anticipation of such epidemics, rather than during their actual existence.

A brief description of the first cases which occurred in Hull in the present epidemic was also given by Dr. Mason.

On Wednesday evening, Dr. Sternberg, Surgeon-General, U. S. A., gave a lecture upon "Pathogenic Bacteria," which was fully illustrated by micro-photographs shown by the stereopticon.

THURSDAY. — MORNING SESSION.

Dr. H. P. Walcott presented, for the Committee on National Legislation, a resolution to the effect that the American Public Health Association strongly urges upon Congress the importance of having some officer appointed by the General Government whose whole time shall be given to the supervision of the general sanitary work of the country, and that he should co-operate with the health organizations of the different States. This resolution was adopted.

Dr. Salmon, Chief of the Bureau of Animal Industry at Washington, presented a paper on "Tuberculosis and the Food-Supply," in which he stated that infected food was an important factor in the production of tuberculosis in man. He advised the inspection of all milch cows and of animals intended for slaughter.

Dr. M. Carmona y Valle, of Mexico, gave a paper on "Syphilitic Infection as a Vehicle of the Communication of Tuberculosis." He illustrated the subject by five cases which came under his personal observation. Ulceration of the throat, in his opinion, played an important part in such infection.

Dr. F. Gutierrez, of Mexico, read a paper upon the "Influence of Habitations upon the Propagation of Tuberculosis." He stated that the ratio of mortality from phthisis in Mexico to the total mortality was only six per cent., as compared with nearly twelve per cent. in the United States. He believed that the dryness of the air in Mexico was favorable to a diminished death-rate from phthisis, while the want of good ventilation, the absence of sunlight, the use of artificial light and the increased heat in the interior of hotels and dwellings in the United States, all favored the spread of the disease.

The poor in Mexico are poorly fed and have poor dwellings, but they have abundance of fresh air and sunlight and are comparatively free from phthisis.

These papers on tuberculosis were followed by an animated discussion.

Dr. Flick, of Philadelphia, opposed the theory of transmission by means of food infection as well as by means of syphilis. He believed that infected habitations were the chief source of transmission, and that such dwellings should be disinfected.

Dr. Orvananos, of Mexico, said that altitude was probably an important factor in producing immunity among the Mexican population.

Dr. Salmon expressed his opinion that the liability of taking the disease depended very considerably upon the number of germs received into the system, and that, in the case of milk, a point might be reached, where the dilution and consequent diminution of the number of germs would render them harmless. He thought that the enormous expense attendant upon the destruction of all infected animals would render such a practice impracticable. He would, however, advise a careful inspection, to ensure the prevention of the sale of infected meat.

Mrs. E. H. Richards, of the Massachusetts Institute of Technology, presented an excellent paper on the "Prophylactic and Therapeutic Value of Food."

Dr. Contraros, of Pueblo, Mexico, read a paper entitled "The Hygiene of Hair-Dressing and Barber-Shops." He referred to the possibility of the transmission of infection not only from the barber to his patrons, but also, through the medium of the barber and his utensils, from one patron to another. He specified the principal parasitic diseases of the hair and of the scalp, which are liable to transmission, and advised that all implements used by barbers should be sterilized by heat after being used in every instance.

A paper by Dr. Ernest Hart, "Objects of the National Health Society of London," was read by title.

(To be continued.)

"THE MISUSE OF DRUGS IN MODERN PRACTICE."

A REPLY FROM THE PAPOID COMPANY.

NEW YORK, October 19, 1893.

MR. EDITOR:—Our attention has been called to an article on page 239 of the Boston *Medical and Surgical Journal* of September 7, 1893, in which the author, under the caption of "The Misuse of Drugs in Modern Practice," describes and deprecates the methods of the modern pharmacist who has departed from the modest practices of his predecessors and "no longer contents himself with providing the profession with the drugs which its experience approves." Now "He aims to direct the medical art. He proclaims the virtues of new drugs, ignoring their dangers. He vaunts the superior qualities of his own wares. Imitating the business methods of his quack rivals, he scatters his circulars broadcast among the profession, containing promises of cure and certificates of results which would do credit to the advertising agents of the rival sarsaparillas." "His agents . . . enter our offices with the assurance of 'drummers' in a country grocery." "Samples are spread upon our tables." "We are told . . . that if we do not wish to be behind the times we must also give them an order." "Their medicines are always successful." They "have no use for unsuccessful cases." The writer, however, does not wish to be "understood as condemning all

advertisements of drugs." "There are some firms whose publications are always welcome." As a specimen of reprehensive therapeutic literature, the writer of the above quotes several sentences from a recent pamphlet issued by us, entitled "Papoid Digestion," and thus by inference places us in the category of quacks and nostrum venders. As this inference is totally at variance with the facts as they exist, we feel that it is not asking anything beyond the limit of fairness if we request you to kindly publish our response to your readers.

In papoid we represent a definite pharmaceutical product, the properties of which are not, so far as we are aware, possessed by any other drug thus far placed before the medical profession. Kindly permit us to say that in advertizing this product it is our province, as chemists, to state chemical truths concerning it, and we have done so in the briefest and clearest language at our command. On the other hand, we have not, either in the pamphlet referred to or in any similar literature, made statements concerning the physiological action of papoid, except such as are quoted from the reports of medical men of high standing — such reports having been culled from reputable medical journals and text-books; and we claim that we have been strictly ethical in reprinting such reports.

As to the chemical statements contained in our pamphlet they are the utterances of Professor Chittenden, of Yale College, quoted from the "Transactions of the Connecticut Academy" (Sheffield Scientific School). We assert that all such statements are strictly true, and that we stand ready to verify them at any time. The balance of the pamphlet consists mainly of articles taken from the medical journals of this country, treating of the physiological action of papoid and written mostly by physicians of wide reputation. For example, we quote from Dr. Love who is at present Vice-President of American Medical Association; one of the incorporators of the Pan-American Medical Congress; Ex-Chairman of the Section of Pædiatrics, American Medical Association; Professor Diseases of Children, Marion Sims College of Medicine, etc.: Dr. Frank Woodbury, of Philadelphia, Professor Clinical Medicine in Medico-Chirurgical College, Philadelphia; Chairman of Section on Materia Medica and Pharmacy in American Medical Association; Fellow of the College of Physicians of Philadelphia; Member of Academy of Natural Sciences, etc.: Dr. Howard Lankester, President State Board of Health, Fisher, Minn.: Prof. T. M. Culver: Dr. Thos. K. Morton, of Philadelphia: Dr. Robert T. Morris, of New York, a man who more than any other individual brought to light the value of peroxide of hydrogen: Dr. A. M. Owen, Treasurer General of the Pan-American Medical Congress; Member Judicial Council of American Medical Association; Ex-President Mississippi Valley Medical Association: Prof. Andrew Jas. Park, of Chicago: Dr. Arch Dixon, President Kentucky State Medical Society; Ex-President Mississippi Valley Medical Association, etc.: Professor Lydston, of Chicago: Professor Larrabee, of Louisville: Professor Dumesnil, of St. Louis, whose name is known on both continents, and many others. In our pamphlet we have given the titles of the articles, the journals in which they appeared, and the dates, so that those who may wish can refer to the original articles. We thus claim that these utterances are worthy the attention of progressive medical thinkers.

The statement that papoid acts in acid, alkaline and neutral media, in combination with almost any drug, and at a wide range of temperature, is, we will admit, somewhat revolutionary in character and should be read by the profession with caution — if not incredulity; for physicians already know that the animal ferments possess no such action. Our pamphlet, however, is composed of quotations from men of high standing; and a tirade against the pamphlet and its contents is at once, not only an attack upon us, but also upon the utterances of medical men who are far better qualified to write upon the subjects which they discuss than some others are to criticise.

We believe that the progressive chemist is the valued handmaid of the progressive medical practitioner. Kindly permit us to say that we are chemists only, and as such we claim the privilege of calling chemical facts to the attention of medical men — facts which we presume the average busy practitioner has neither time nor opportunity to learn through original research. We have stated facts which we believe many of the members of the medical profession were not previously familiar with; and these facts being such as to attract the attention of many progressive medical thinkers, the result has been the appearance of conclusive clinical statements in the leading medical journals showing the physiological action of papoid. These statements we claim the privilege of quoting after receiving permission from the authors; and we have freely circulated reprints, *but to the medical profession only.* They should be of interest to any physician who claims to keep pace with medical progress; and if any of these reprints have fallen upon stony ground, it is a reflection upon the receiver rather than upon the author or the sender.

It is not true that our "representative has called upon" the author of this attack. It is not true that "we have forced samples upon him"; and if he ever received any it was because he asked for them. It is not true that "we have attempted to usurp the province which belongs to the physician." And it is not true that we ever, by word or implication, gave him or any one else the right to ascribe to us even by inference the statement that "We have no use for unsuccessful cases."

Permit us to say, in conclusion, that we propose to continue strictly in the ethical line previously followed by us, and are prepared to demonstrate the absolute accuracy of all utterances appearing over our name.

Very respectfully yours,
JOHNSON & JOHNSON, Chemists.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 14, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	697	254	18.62	15.54	8.12	2.38	5.60
Chicago	1,438,000	—	—	—	—	—	—	—
Philadelphia	1,115,562	313	110	17.60	10.24	5.44	1.28	8.64
Brooklyn	978,394	374	171	15.86	10.40	10.06	—	6.50
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	227	88	22.44	9.68	6.16	2.20	9.24
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,131	98	30	22.44	11.22	4.08	6.12	9.18
Cincinnati	305,000	105	36	16.13	12.35	—	2.85	10.45
Cleveland	290,000	64	31	17.16	3.12	7.80	3.12	3.12
Pittsburg	263,709	86	39	30.16	9.28	3.48	6.96	8.12
Milwaukee	250,000	68	35	11.76	7.35	2.94	2.94	4.41
Nashville	87,754	15	36	33.33	26.66	—	13.33	—
Charleston	65,165	46	17	15.19	10.85	8.68	2.17	—
Portland	40,000	13	1	—	30.76	—	—	—
Worcester	96,217	23	15	43.50	4.35	17.40	—	13.05
Fall River	87,411	34	10	23.52	8.82	14.70	5.88	2.94
Lowell	87,191	29	11	27.60	20.70	13.80	13.80	—
Cambridge	77,100	—	—	—	—	—	—	—
Lynn	62,656	16	8	12.50	6.25	6.25	—	—
Springfield	48,684	14	5	21.42	7.14	14.28	—	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	15	8	26.66	6.66	33.33	13.33	—
Holyoke	41,278	—	—	—	—	—	—	—
Salem	32,233	9	0	11.11	22.22	11.11	—	—
Brockton	32,140	—	—	—	—	—	—	—
Haverhill	31,396	14	5	14.28	14.28	7.14	—	—
Chelsea	30,264	6	2	—	—	—	—	—
Malden	29,394	8	3	37.50	12.50	12.50	—	—
Newton	27,556	—	—	—	—	—	—	—
Fitchburg	27,146	6	2	—	16.66	—	—	—
Taunton	26,972	9	1	11.11	—	—	11.11	—
Gloucester	26,688	12	4	16.66	8.33	—	—	—
Waltham	22,058	4	0	25.00	25.00	—	—	25.00
Quincy	19,642	6	2	33.33	16.66	—	16.66	—
Pittsfield	18,802	5	0	—	—	—	—	—
Everett	16,585	4	1	—	—	—	—	—
Northampton	16,331	6	2	33.33	—	33.33	—	—
Newburyport	14,073	6	2	33.33	—	—	—	33.33
Amesbury	10,920	1	0	—	—	—	—	—

Deaths reported 2,270: under five years of age 942; principal infectious diseases (small-pox, measles, diphtheria and croup,

diarrhœal diseases, whooping-cough, erysipelas and fever) 457, consumption 284, acute lung diseases 203, diarrhœal diseases 166, diphtheria and croup 154, typhoid fever 59, scarlet fever 30, whooping-cough 19, cerebro-spinal meningitis 14, measles 7, small-pox 2.

From scarlet fever Pittsburg 8, Boston 6, Philadelphia 4, New York 3, Brooklyn and Cincinnati 2 each, Cleveland, Springfield, Haverhill, Quincy and Woburn 1 each. From whooping-cough New York 8, Philadelphia 3, Pittsburg 2, Boston, Washington, Cincinnati, Nashville, Worcester and New Bedford 1 each. From cerebro-spinal meningitis New York, Brooklyn, Malden and Gloucester 2 each, Boston, Washington, Cleveland, Worcester, Lynn and Somerville 1 each. From measles New York 2, Brooklyn, Boston, Washington, Milwaukee and Worcester 1 each. From small-pox New York 2.

In the thirty-three greater towns of England and Wales with an estimated population of 10,327,846, for the week ending October 7th, the death-rate was 18.5. Deaths reported 3,656: acute diseases of the respiratory organs (London) 230, diarrhœa 193, diphtheria 88, fever 81, scarlet fever 68, whooping-cough 68, measles 30, small-pox (Bradford 10, West Ham 2, London, Wolverhampton and Birmingham 1 each) 15.

The death-rates ranged from 8 1 in Croydon to 32.2 in Wolverhampton; Birmingham 21.3, Bradford 20.2, Hull 22.2, Leeds 14.7, Leicester 16.4, Liverpool 23.2, London 17.9, Manchester 21.3, Newcastle-on-Tyne 21.4, Nottingham 15.6, Salford 21.5, Sheffield 19.8, Sunderland 23.6, West Ham 17.4.

METEOROLOGICAL RECORD,

For the week ending October 14, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S.. 8	30.02	62	72	52	71	64	68	W.	S.W.	10	12	C.	C.	
M.. 9	29.80	66	79	54	68	42	55	W.	W.	10	20	F.	C.	
T..10	30.08	55	64	48	50	58	54	W.	N.W.	19	15	C.	C.	
W.11	30.24	53	62	44	62	64	63	N.W.	S.W.	7	9	C.	C.	
T..12	30.23	61	72	49	76	65	70	W.	S.W.	1	12	C.	C.	
F..13	30.08	69	69	92	67	89	78	S.W.	E.	7	10	F.	O.	
S..14	29.49	66	73	59	86	82	84	S.	S.W.	36	15	O.	C.	.80
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 14, 1893, TO OCTOBER 20, 1893.

FIRST-LIEUT. A. N. STARK, assistant surgeon, now at Fort Clark, Texas, will proceed at once to Fort McIntosh, Texas, and report to the commanding officer for temporary duty with troops in the field at Carrizo, Texas.

FIRST-LIEUT. ROBERT S. WOODSON, assistant surgeon, U. S. A., now temporarily at Fort McPherson, Georgia, will return to his proper station, Fort Barrancas, Florida.

Leave of absence for one month, to take effect about the 20th instant, is granted FIRST-LIEUT. MERRITTE W. IRELAND, assistant surgeon, Fort Apache, Arizona Territory.

SOCIETY NOTICES.

NEW YORK STATE ASSOCIATION OF RAILWAY SURGEONS.— The third annual meeting will be held in the Academy of Medicine, 17 West Forty-third Street, New York City, Wednesday, November 15, 1893.

GEO. CHAFFEE, *President*, Brooklyn.
M. CAVANA, *Secretary*, Oneida.

THE SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY hold its first meeting at 19 Boylston Place on Wednesday evening, November 1, 1893, at 8 o'clock.

Dr. Geo. L. Walton will read a paper on "Dislocation of Cervical Vertebræ: Report of a Successful Case."

Dr. Fred B. Lund will read a paper on "Tendon Suture."

CHARLES L. SCUDDER, M.D., *Secretary*, 1 Marlborough St.

SUFFOLK DISTRICT MEDICAL SOCIETY.— The stated meeting will be held at 19 Boylston Place, on Saturday, October 28, 1893, at 8 P. M.

Papers: Dr. C. F. Withington: "Medical Teaching Abroad." Dr. R. W. Lovett; "Surgical Operations upon Young Babies; A Report of Four Months' Experience at the Infants' Hospital."

Business: Election of a committee of five to prepare a list of candidates for officers of the Society for 1894–95.

Supper after the meeting.

Members are requested to notify the Secretary, at 188 Marlborough Street, of any error or change in address.

Notice of the meetings of each section is sent to those only who have notified the secretary of that section that they wish to join it. The secretaries of the sections are appointed at this meeting.

A. L. MASON, M.D., *President*.
JAMES J. MINOT, M.D., *Secretary*.

RECENT DEATHS.

JAMES H. BODGE, M.D., M.M.S.S., of Newton Centre, died at the Boston City Hospital, October 19th, aged fifty-three years. He graduated from Dartmouth College in 1865 and from the Harvard Medical School in 1867.

CHARLES H. FISHER, M.D., Secretary of the Rhode Island State Board of Health, died at Buffalo, N. Y., October 21st, aged seventy-one years. He graduated from the Dartmouth Medical School in 1848. From his first election to the Rhode Island Medical Society in 1850, he served in the various offices and was made its president in 1877. He was several times State senator, and for some years was a member of the State Board of Education, as well as a trustee of the State Normal School from its establishment. From 1862 to 1865 he was State inspector of recruits for the Army and a member of the Board of Exemption. In 1878 the Rhode Island State Board of Health was organized and Dr. Fisher was unanimously elected its secretary, which position he filled until his death.

ALGERNON S. COE, M.D., died at Oswego, N. Y., October 18th. He served as surgeon of the One Hundred and Forty-seventh Regiment, New York Volunteers, during the war, and as brigade surgeon three years, without the loss of a single day at his post.

BOOKS AND PAMPHLETS RECEIVED.

Erotopathia (Morbid Erotism). By C. H. Hughes, M.D., St. Louis. Reprint. 1893.

How to Treat Your Own Feet, a Treatise on the Human Foot, with Illustrations. By Charles Kahler, Surgeon Chiropedist. New York: Dr. P. Kahler & Sons.

A Practical System of Studying the German Language. For physicians and medical students for self-instruction. By Albert Pick, M.D. Part III. Newtonville, Mass.: E. S. Tanner. 1893.

The French Doctor's Book, Containing a Collection of 1,200 Favorite Prescriptions, by the Most Eminent Foreign Physicians. English translation. Copyright 1893 by Wm. von Bergen. Boston: Wm. von Bergen. 1893.

The Diseases of the Male Organs of Generation. By W. H. A. Jacobson, M.Ch., Oxon., F.R.C.S., assistant surgeon, Guy's Hospital; surgeon, Royal Hospital for Children and Women. With eighty-eight illustrations. Philadelphia: P. Blakiston, Son & Co. 1893.

Lectures and Essays on Fevers and Diphtheria, 1849 to 1879. By Sir William Jenner, Bart., G.C.B., M.D., Lond., and F.R.C.P., D.C.L., Oxon, LL.D., Cantab. and Edin., F.R.S., President of the Royal College of Physicians from 1881 to 1888; Physician in ordinary to H. M. the Queen and to H. R. H. the Prince of Wales; Consulting Physician to University College Hospital. New York: Macmillan & Co. 1893.

Sterility in Woman, Causes, Treatment and Illustrative Cases. Microscopical Studies in Pelvic Peritonitis. Diagnosis and Some of the Clinical Aspects of Gyroma and Endothelioma of the Ovary. Carcinoma on the Floor of the Pelvis. Colpo-Hysterectomy for Malignant Disease. Oophorectomy in Diseases of the Nervous System. By Mary A. Dixon Jones, M.D., Brooklyn, N. Y. Reprints. 1892–93.

A Treatise on the Science and Practice of Midwifery. By W. S. Playfair, M.D., LL.D., F.R.C.P., Physician Accoucher to H. I. and R. H. the Duchess of Edinburgh; Professor of Obstetric Medicine in Kings College; Physician for the Diseases of Women and Children to Kings College Hospital; Consulting Physician to the General Lying-in Hospital and the Evelina Hospital for Children; Late President of the Obstetrical Society of London; Examiner in Midwifery to the Universities of Cambridge and London and to the Royal College of Physicians. Sixth American from the eighth English edition, with notes and additions. By Robert P. Harris, A.M., M.D., Honorary Fellow of the American Gynecological Society and of the Philadelphia Obstetrical Society; Corresponding Member of the Obstetrical Society of Leipzig and of the Royal Medico-Chirurgical Society of Naples, etc. With five plates and two hundred and seventeen illustrations. Philadelphia: Lea Brothers & Co. 1893.

Original Articles.

THE HYGIENIC ARGUMENT FOR CREMATION CONSIDERED FROM A BACTERIOLOGICAL STANDPOINT.[1]

BY A. K. STONE, M.D.

At the time when the cremation movement was in its infancy the need for some immediate change in the mode of the disposal of the dead was manifest, and the evils of intramural burial everywhere acknowledged. Thirty years ago few of the cities of the old world had any common water-supply. The inhabitants for the most part depended upon wells. These were frequently contaminated, and often became sources of epidemics; and it was much easier to lay the charge to some neighboring cemetery, than to the contamination of such wells by the sewage from neighboring houses. For, should the latter be proved, individual interests must be sacrificed and actual hard cash must be paid out by the owners of the adjoining property in order to remedy their defective drainage.

Now there are few cities of any size where there is not a general water-supply, and any contamination which produces anything like an epidemic arouses the citizens, and the boards of health are ready to see to it that the source of contamination is found and stopped, never minding the cost or discomfort of a few individuals.

The overcrowding of most of the churchyards gave great plausibility to this argument. The churchyards were usually small plots of ground around the church, and had been in use for very long periods of years. Usually they were in parts of the towns or cities where the population was especially dense, and where improvements in sanitation were slowest to make progress. Again, their use had gradually become confined to burials of the poorer classes from the neighboring parish, and single individual graves were very rare. In London it was the general custom to dig a deep grave, usually having to bore with a long augur to find a place where such a grave could be made without disturbing coffins still in a good state of preservation. When these deep common graves had been dug, they were kept open, or loosely covered with boards until such a time as it was filled to within a couple of feet to the top, the last coffin was then covered with a foot and one-half to two feet of earth. In fact, in London alone, with its immense population, the churchyard area in 1849 only amounted to about 218 acres, and in this there were annually over 50,000 people buried. Such a number would cause the whole space to be filled completely with bodies each decade.

The same condition of affairs was to be found all over the Continent, where the conservatism of the people and the scarcity of land caused the same graveyards to be used for centuries.

In this country the older graveyards in many of the cities became overcrowded early in this century, the most notable case being Trinity Churchyard in New York. Here the soil was so shallow that it was impossible to dig a grave so that the body should be more than eighteen inches to two feet below the surface. During the Revolutionary War the Hessians were employed to cover the churchyard with several feet of earth. Yet in spite of this, in the early part of this century, the stench from this graveyard was extremely bad; and during the cholera epidemic of 1849 the disease seemed to have a focus about this burying-ground. Several of the other old churchyards in New York and Copp's Hill Burying-ground in Boston became overcrowded, and had to be closed against further interments.

In spite of this horrible condition of affairs common to many places during the middle of the century, the number of epidemic diseases actually attributable to cemeteries is very small indeed. Adams, in the Sixth Annual Report of the Massachusetts State Board of Health, states that after a careful study of the reported epidemics due to graveyards, he only found two that were at all credible. One of these was in Barbary and the other in Italy; and from the account of the latter, it is doubtful whether it would stand the light of modern investigation. A circular sent at this time to five hundred physicians, evoked only eleven positive replies. Of the five in Massachusetts, four would not stand investigation, and the other could not be inquired into, because of the physician's having left the State. Of the answers to Dr. Adams from abroad, in one the deleterious influence was thought to be due to an overcrowded churchyard; but in this case no wells were involved, and the evil effects probably came from the foul air.

Dr. Cameron, Professor of Hygiene in Dublin, while having known of several cases of illness due to neighboring graveyards, and of several wells that were undoubtedly contaminated with nitrogenous material from similar sources, says: "I am disposed to believe that the injuries arising from badly kept graveyards are to be attributed to a far greater extent to the foul air, than the contaminated water. If the latter be very foul, it will, of course, produce diarrhœa, lowering the vital powers, and other effects caused by water containing simple decomposing organic material. I am of the opinion that water tainted by graveyards does not cause typhoid fever, or other zymotic disease."

Mr. Holland, Medical Inspector of Burials of England and Wales, states that in properly regulated cemeteries he has known of no sickness which appeared to be induced or aggravated by any such cemetery, though in overcrowded graveyards he had had numerous instances of mischief done to the inhabitants in the neighborhood.

In the same year (1874) Baginsky[2] could not discover a single case where the vicinity of a graveyard had caused an epidemic. Further, a series of investigations were made in regard to the chemical conditions of the water in the wells of churchyards in various cities by Wernher,[3] in which he found the water of the churchyards was purer than the wells of the town. Müller[4] also reaches the same results after a very complete investigation. Adams quotes from Professor Fleck[5] of Dresden, who in 1872, during the months of June to September, examined carefully the water from the nine wells of the cemetries, and also from the wells in the town. First, no injurious physiological effects from the cemetery water came to the author's notice, although in many instances the water of the wells was in constant use by the families of the gravediggers. In general there was no essential difference between the average well water throughout the city of Dresden and the analysis of the water from the

[1] Read before the Warren Club.

[2] Leichenverbrennung von Standpunkt Hygiene. Quoted by V. Esmarch, Berlin, 1874.

[3] Wernher: Bestattung der Todten. Quoted by V. Esmarch.

[4] Schädigen die Kirkhöfe def Gesundheits der Lebenden, 1887. Quoted by V. Esmarch.

[5] Professor Fleck, 1893. Quoted by Adams.

nine wells in the cemetries. In Paris, water from a well near a cemetery had a sulphur-like taste, and was bottled and sold as a mineral water and obtained considerable repute.

Zulger alone, to the contrary, reports a typhoid epidemic from a graveyard in Berlin in 1873. But a sanitary committee of Berlin (1882–1885) could not find that the burial places exerted any influence either upon the production or spread of typhoid fever.

All of this goes to show that no serious epidemics have been attributable to graveyards, even during the period in which there was the best chance for such to have taken place, owing to the utter disregard of sanitary laws and to the great overcrowding of the burial grounds.

Since 1880, a period in which there has been the greatest activity among scientific men in their desire to discover sources for disease and epidemics, I have been unable to find any well authenticated case of epidemic coming from any burial place, although an epidemic of cholera in Spain is reported as coming from an old graveyard where the victims of previous epidemics had been buried. From what we know of the source and origin of cholera, it does not seem probable that this case will stand investigation.

With the development of the science of bacteriology, a new force was given to the arguments of those who believed in cremation. The bacteria were the cause of disease. The body of the person, when buried, carried with it into the earth the pathogenic bacteria. These escaped from the body, found their way into the neighboring subterranean water-ways, and carried pestilence to the wells and water-supplies. Such was the *a priori* reasoning and it seemed extremely plausible. Therefore a number of attempts have been made to investigate the condition of the soil in its relation to germ life.

The first series of experiments of importance was made incidentally in the course of experiments made to determine the etiology of the anthrax. It was found by Pasteur that in fields which had not been used for pasturage for many years on account of previous occurrence of anthrax, when new herds were again let into the fields they were soon attacked by the anthrax bacilli and the plague again appeared. He accounts for this by the fact that the bodies of the animals which had died during the previous epidemic had been buried in the field, that the spores of anthrax had formed in their bodies, and that these spores had been brought to the surface by earthworms and were then taken up by the animals feeding on the grass, etc.

Koch, however, in his article, showed by a series of seven experiments that it was very rare that earthworms acted as carriers of spores. He placed a number of earthworms in a pot of earth filled with spores of anthrax, and then with precautions against contamination, inoculated mice with the contents of the intestinal canal of the worms. The time that the worms had been in the earth which contained the spores varied from five days to one hundred and ten days. In all the control experiments where the mice were inoculated with small particles of the earth, they died on the following day of anthrax, while only one of the mice inoculated from the earthworms died, and that was on the third day. The possibility of contamination from the earth adhering to the worm must, of course, be considered in this case.

But even if the earthworms may be poor carriers of the bacteria, Koch further showed that it was highly improbable that spores could form in the lower levels of the surface of the earth, where the animals would naturally be buried, on account of the permanent low temperature. Also, while it is unusual, if indeed it ever occurs, for spores to form in the living body during life, there were plenty of chances for spore formation to take place on the surface of the soil, which was always smeared more or less with the bloody discharges of the diseased animals, if it was not soaked with the infected blood of the animals, which were rarely allowed to be buried before their hides were removed. Hence, the earth's surface and the grass could be the source of the later epidemics. It is to be remembered that dead bodies are usually buried much deeper than the ordinary habitat of the earthworm. And moreover, earthworms do not feed upon dead animal material.

All of these arguments go to disprove Pasteur's earthworm theory and we are obliged to give up the supposition that spores are brought to the surface for the infection of man and animals by any such agency.

Koch's work was later substantiated by Kitasato, who made a series of observations [6] upon the possibility of spore formation in anthrax. He took, with aseptic precautions, the blood of mice that had died of anthrax and inoculated gelatine and agar tubes and placed them in the earth at various depths. This he repeated each month in the year, and a record of the temperatures at the various depths was carefully noted. Control tubes were made and kept at the room temperature, but no spore formation was seen in any of these cultures. From the results of these experiments it was shown that the anthrax bacilli at the depth of one-half a metre during June, July and August, and at a depth of one and one-half metres during July alone, formed spores. At the latter depth only a very few appeared. Also, during July, a few bacilli grew at the depth of two metres, but they had no spores; while at three metres below the surface there was no growth at any time. In other words, no bacilli of anthrax showed any growth when the temperature was lower than 14° C. At 15° C. a few spores began to be formed. No bacilli were found alive after a stay of four weeks in the ground, and some of the cultures were dead at the end of a week, others at the end of two weeks. If bacteria of decomposition were added, no anthrax could be found at the end of a week, even during July and August, at a depth of one and one-half to two metres.

Heser [7] investigated the bodies of sheep, goats, cattle and horses buried in the ground at various depths, which after a certain time were exhumed and examined for virulent bacilli by inoculation upon other animals. In this series there was, with one exception, a negative result, although a goat was dug up on the fourth day, a cow on the seventh, and another cow on the ninth day. The exception was a sheep, which lay for fourteen days in winter at a temperature of 6° to 8° C.

V. Esmarch also made a series of experiments with the bodies of animals placed in different conditions, buried in loam, in sand, at various depths, and also kept in water, the ice chest, the constant temperature apparatus and in the free air. In only one single case did the bacilli survive the death of the animal eighteen days, and that was in the body kept in an ice chest.

[6] Zeitschrift für Hygiene, 1890, vol. viii.
[7] Zeitschrift für Thiermedicin., 1877. Quoted by V. Esmarch.

All these experiments were conducted to exclude oxygen as far as possible. To prove that spores were not formed in the bodies, a piece of meat was taken and also the body of a mouse. Into each of these spores of anthrax were introduced, with the result that after seventeen or eighteen days, inoculation showed the presence of the anthrax bacilli, thus proving that when spores were present before burial that they remained virulent.

It will be seen that all this work goes to support the original assertion of Koch, that spore formation rarely took place beneath the soil or in decomposing animals. Therefore the bodies of such animals are not a source of infection, if deeply buried.

What is true of anthrax is also true in a great measure of other specific, pathogenic organisms and the possibility of danger of infection in other diseases is lessened, because in a few of the ordinary bacterial diseases does the pathogenic bacteria form spores. V. Esmarch further concludes from his investigations that the greatest number of pathogenic bacteria probably cease growing soon after the death of their victim (though Frænkel and others had previously observed that a decided increase for a short time took place in certain cases). The disappearance occurs more rapidly the faster decomposition progresses. The specific bacteria are probably simply killed by the more vigorous growth of the bacteria of decomposition, by the absorption of oxygen and chemically by the production of products unfavorable to their development.

A similar set of investigations were undertaken by Dr. Petri,[8] and extended over a period from 1885 to 1891. It was his purpose to find out how much the dead bodies of animals, which were known to be full of pathogenic bacteria, were a source of danger to the living.

In all such cases the question necessarily arises, how far the deductions which are made from the bodies of small animals can be applied to larger animals. But so far as there has been any chance for comparison between the experimental animals and sheep, cattle, etc., there has been no great variation. Petri's experiments were made with the bodies of mice, guinea-pigs and rabbits, and were conducted with the greatest care, and, whenever possible, control experiments were made. The internal organs of the animals were examined; also the fluids in the coffins and the soil about the coffins.

Anthrax experiments were made on the bodies of mice. The first was buried in sterile earth and kept moist with sterile water. After fifty days they were disinterred and one of two mice inoculated from the internal organs died of anthrax after seven days, showing a very low state of virulence. In the other case, it was supposed that anthrax was found in the cover-glass preparations, but neither the plates nor the inoculated animals showed the presence of live anthrax. In one case, after a lapse of five years, one month and eleven days, one out of six inoculations gave a positive result, but neither feeding or plate cultures gave a similar result. In some manner spore formation must have taken place.[9]

Next, sixteen guinea-pigs were buried in wood and zinc coffins, which were exhumed and examined from time to time. These were buried in a chest, with about 15 to 20 c.m. of earth over them, and kept moist and at a temperature which varied from 5° to 19° C. Out of the sixteen experiments, three gave positive results. The first after three months, in wood; the second in a zinc coffin, after six months, two days; and the third after a period of three years, ten months (46 months). Inoculated with fragments of liver, two mice remained well, while two guinea-pigs died (!). In all the corresponding zinc coffins, the fluids and the internal organs remained perfectly sterile, so far as aërobic bacteria were concerned.

CHOLERA.

Nineteen guinea-pigs were killed with cholera bacilli and buried in wood and zinc coffins. From the wood positive results were reached on the sixth, seventh and ninteenth day, and in the zinc on the eleventh and twelfth days; afterwards negative. Also two animals were buried free, and being exhumed, one on the seventh day, and the other after three months and nineteen days — both gave negative results. Two were also put into water and allowed to stay, the first eighteen days, and the second two months and ten days; and neither the water nor the bodies showed any bacilli. An animal buried for two months and a half in very moist earth, was exhumed at the end of that time, and neither the soil nor the cadaver showed any signs of the cholera bacilli.

TYPHOID.

Twelve rabbits were killed and injected through the aorta with a bouillon culture of typhoid, and the presence of the bacilli in the extremities was demonstrated. These bodies were buried in a sandy hill in wood and zinc coffins. All the investigations gave a negative result. There was even no discoloration of the beautiful yellow sand; and though large numbers of the bacteria had been present, they could never be found, even in the fluids which could not escape from the zinc coffins.

TUBERCULOSIS.

Twelve extremely tuberculous rabbits were buried in wood and zinc. At the end of twenty-two days, and of two months and five days, the exhumation gave positive results. That which took place at the end of five months and six days gave positive results in the zinc alone, and after that the experiments were negative.

In general, it may be said that the fluids in the zinc coffins rarely contained the pathogenic bacteria. And in no case did the earth that had been soaked in the decomposing fluids, show the presence of the pathogenic bacteria. This is of special importance as regards the spread of disease through water-ways; and the question of whether the pathogenic bacteria last a few months more in a large cadaver is of little consequence as compared to this question, which can hardly be affected by the size of the animal. [This conclusion is not altogether in accord with the results of sewage filtration experiments, where it has been shown that the filter beds should be frequently renewed, or allowed to lie idle, in order to have perfect filtration. So under unhygienic conditions, where rapid decomposition takes place, it is possible to imagine a soil so overcharged with animal matter as to transmit bacteria direct to the ground-water.]

(*To be continued.*)

[8] Dr. Petri: Arbeiten aus den kaiserlichen Gesundheits Amt., Bd. vii, 1891.

[9] It may be well to note that the depth of burial was not sufficient to shut out all possibility of the presence of oxygen. Also, as post-mortem examinations were made in all cases, the internal organs were exposed to the action of oxygen to an exceptional degree, and herefore spore formation was made possible.

HYSTERECTOMY FOR CANCER OF THE CERVIX BY COMBINED ABDOMINAL AND VAGINAL DISSECTION.[1]

BY MAURICE H. RICHARDSON, M.D.,
Visiting Surgeon, Massachusetts General Hospital; Assistant Professor of Anatomy, Harvard Medical School.

THE following brief consideration of this subject, from the standpoint of a general surgeon and anatomist, will not, I hope, prove uninteresting.

In liability to recurrence after operation, uterine cancer equals, if it does not exceed, cancer of the breast. The reasons for this are to be found in the local malignancy of the uterine growth, a malignancy developing and extending as rapidly in the cervix as in the breast, and in the almost insurmountable difficulties encountered at its complete extirpation. Secondary infiltration of the broad ligaments — the earliest possible metastasis in cancer of the uterus — renders the entire removal of the disease impracticable, if not impossible; and were this invasion as universal as that of the axillary lymph-glands in cancer of the breast, no radical or dangerous operation upon the uterus would be justifiable. The surgical procedures, therefore, would be limited, and only those measures would be selected that relieve suffering and prolong life.

Clinically we do not find the broad ligaments invariably affected, even in cases of extensive local disease; on the contrary, in many instances no secondary infiltration whatever is found in separating the uterine ligaments. Not only by the absence of infiltration in these cases, but also by the numerous permanent cures following hysterectomy, are we justified in concluding that uterine cancer is infrequently associated with early metastases. Not that cancer of the cervix manifests as slight a malignancy as cancer of the lip in its early stages, for in some instances, at least, the former shows a tendency to rapid growth and invades the surrounding parts almost before its presence is known, or even suspected. Nevertheless, my experience leads me to believe that cancer of the cervix is distinctly less malignant in its early development than cancer of the breast.

In breast tumors the patient's fears lead more frequently to early consultation than in uterine disease, for the existence of the latter often remains unsuspected, the patient supposing her symptoms merely an excess of the normal physiological discharge. A natural tendency towards concealment gives us but rarely a chance to investigate and treat either disease in its earliest stage. Moreover, in both breast and uterine disease, pain is so frequently absent that no conspicuous symptom remains to call attention to these regions, so that a tumor may obtain considerable size in the breast before it is discovered, or the uterine discharges may become excessive or even offensive, before a physician is consulted. Hence, most cases of early uterine cancer are discovered by the physician in the course of treatment for symptoms in which serious disease is not suspected; while the occasional absence of symptoms allows breast tumors to become hopelessly extensive before there is any suspicion of their growth.

Cancer may extend from the cervix in all directions and invade the vaginal mucous membrane and the important structures lying in close relation with it. In fact, the epithelial infiltration must be very circumscribed not to involve also, in a hopeless entanglement, the bladder wall, the rectum or the ureters; yet the disease is occasionally limited to the internal layers of the cervix or to the body of the womb without appearing in the peri-uterine structures at all. But, unfortunately, cancer seldom confines itself in this manner; we must expect the contrary in most instances and find the disease spreading in all directions in hard and ulcerating masses.

It follows from clinical and pathological considerations that cases of cervical cancer favorable for extirpation and permanent cure are rare, that operations for relief have very decided limitations and that at best the outlook is gloomy.

From a brief consideration of the anatomy of this region, we shall find ourselves still more limited and unsuccessful in our efforts thoroughly to extirpate cancer of the cervix.

The analogy between cancer of the lip and cancer of the cervix is striking, clinically, in that both seem at first to have only a local malignancy, while both, when well under way, exhibit a rapidity of growth and area of metastases that is deplorable. In lip cancer, however, the nearest structures, the invasion of which makes interference well-nigh hopeless, are the submaxillary glands and the lower jaw, not to mention the body of the cheek. In uterine cancer, on the contrary, a peri-cervical extension of much less than an inch renders cure by excision absolutely hopeless.

A clear idea of the relations between the cervix, bladder, rectum, peritoneum and ureters is therefore of the greatest importance, not only for prognosis but for technique. The following brief description of their relations is based upon numerous dissections upon both the living and the dead subject, made with special reference to hysterectomy.

Anteriorly, the extravaginal portion of the cervix is separated from the walls of the bladder by areolar tissue, easily dissected by the finger after cutting the vaginal attachment. The intravaginal portion is separated from the bladder by the superior vaginal wall. The vagina is not so easily separated from the bladder as the uterus, being more intimately attached. When infiltrated, the vaginal mucous membrane is inseparable from the bladder wall, though the disease does not grow towards the vesical mucous membrane as rapidly as it spreads laterally.

Posteriorly, the cervix is separated from the rectum by the fold of peritoneum and vaginal mucous membrane, which together make the base of the pouch of Douglas. This interval varies somewhat in extent. Separation of the vagina and rectum is easy because they are connected only by loose areolar tissue, easily dissected with blunt instruments or with the finger. Separation of these structures, however, is not so easy as we go back, the vagina and rectum being more intimately connected near the cervix. As in the upper vaginal wall, malignant disease shows a greater tendency to spread than to penetrate; so that there may be a very extensive infiltration and ulceration limited to the posterior wall, the rectal mucous membrane apparently remaining intact. This fact I have observed frequently in advanced cancer of the cervix and vagina. The rectal mucous membrane, in many cases, is scarcely, if any, involved, so that it slips easily in all directions over the vaginal mass. Not that this is always the case, for we often find recto-vaginal fistulæ in advanced cancer; but it is frequent enough to justify us at times in operating where the vaginal mucous

[1] Read before the Obstetrical Society of Boston, June 10, 1893.

membrane alone is involved. The prognosis is very unfavorable, however, because we must literally shave the tumor in our dissection.

In the intimate relations between the ureters and the cervix, we find our most discouraging facts, both as regards prognosis and technique.

Entering the pelvis under the peritoneum, near the origin of the internal iliac artery, the ureters pass downward, forward and inward. Approaching the cervix they run directly forward on each side toward the superior vaginal wall. In their passage to the bladder they are separated from the cervix by a very short interval, varying in different subjects, but practically almost in contact with it. They are loosely placed in the surrounding tissues in this part of their course, and they may easily be isolated and drawn to one side. The distance between the ureters and the cervix may depend upon disease and upon the width of the cervix itself. In the blind manipulations of a vaginal hysterectomy, where nothing can definitely be seen, there is always danger of wounding these vessels. Vaginal hysterectomy, therefore, is not only hazardous because the ureters may be wounded, but it is also likely to fail of permanent cure, for the slightest extra-cervical infiltration must involve tissues in the immediate vicinity of these structures so essential to life.

The broad ligaments, extending outwards from the anterior and posterior surface of the uterus, are reflected at the pelvic brim, to which they are attached. Thin above, the duplication of peritoneum becomes widely separated as we approach the cervix. An antero-posterior longitudinal plane, passed through the ligament at its reflection from the uterus, makes, therefore, a triangular section, the apex of which is the Fallopian tube, and the base the lateral vaginal attachments.

Between the peritoneal folds at the apex of this triangle we have the Fallopian tube. As we descend close to the uterine body we find the peritoneal reflections gradually separated. In tying and dividing the attachments of these folds the tissues broaden, till, at the vaginal insertion, our clamps embrace a mass of considerable size. In vaginal hysterectomy the reverse is true. The most important structures involved in the operation — the arteries, veins and ureters — are situated between the lower portion of the peritoneal folds. From the position of the ureters, between these folds, always very close to the cervix, we cannot hope for a broad margin in the excision of cancer of the cervix, under any circumstances, as we may in cancer of the lip and cancer of the breast.

The dangers encountered in vaginal hysterectomy are wounding of the ureters and hæmorrhage. It is, therefore, desirable so to perform the operation that, first, the ureters may be avoided by as narrow a margin as possible; and, secondly, that the arteries and veins may be securely tied. Leaving for the present the question of septic infection, it is evident that vaginal extirpation of the uterus must be performed without a definite knowledge of the location of the ureters. They can only be avoided by clinging closely to the cervix and to the uterine body. This is very undesirable where it is necessary to remove the disease as radically as possible. In vaginal hysterectomy we grope between the ureters and not only run great risk of wounding them, but we do not give the disease as broad a margin as we otherwise might.

By the vaginal route, hæmorrhage is a conspicuous danger. If our ligatures slip, or our clamps break or come off, we may have, deep within the pelvic cavity, an alarming hæmorrhage which can only be checked with the greatest difficulty. Indeed, it is impossible at times to prevent a fatal hæmorrhage, even with the greatest skill and experience. Not that the control of bleeding is difficult in all cases, for we often find the uterus so movable that all the manipulations may be performed at the vaginal outlet. Where the uterus is large and firmly fixed, however, it is impossible to bring the broad ligaments within easy reach, and we must then apply long clamps, which are liable at any time to slip or to break. In difficult cases, therefore, we must expect formidable dangers and deplorable accidents.

The advantages of the vaginal operation lie chiefly in drainage.

By the suprapubic operation, in the Trendelenberg posture, we are able to determine the condition of the broad ligaments, to recognize a hopeless metastasis, and to dissect with precision. The slight dangers of this method are more than balanced by the thorough knowledge we may obtain of the nature and extent of the disease. In cases evidently hopeless the abdomen can be closed and a palliative operation by the vagina substituted. But if, by abdominal exploration, we find no contra-indications to a complete hysterectomy, we may proceed with much greater safety, and more thoroughly remove the diseased uterus and appendages. From the pathological standpoint, therefore, the abdominal route is preferable because we can remove not only the uterus and the cervix, but we can include the broad ligaments and the structures contained within their folds.

From the standpoint of the anatomist this operation is much preferable to the vaginal method. With the patient in the Trendelenburg position, a clean dissection with the knife or scissors may be made as far as the vaginal attachment. Starting at the pelvic brim, the structures may be successfully tied and cut until we approach the cervix, when by careful manipulations the ureter may be brought into view. The dissection from this point may be carried on as intelligently as a dissection of the common carotid. The ureters on either side may be brought into view, held out of the way by an assistant, and the vaginal attachment severed. The uterine arteries can be found by their pulsation, and tied. As we approach the vaginal attachment, however, it is very hard to tell just the limits of the disease. Up to this point the operation may be performed with great ease and with perfect safety. Separation of the vaginal attachments on all sides must now be made with great care if we would avoid wounding the rectum, the bladder and the ureters. During the prolonged manipulations necessary to avoid these errors, we run a considerable risk of a serious septic infection. It is to avoid these difficulties and dangers that I advocate the combined vaginal and abdominal dissection.

By the abdominal method the septic masses are constantly drawn toward the area that we wish to protect; by the vaginal method they are constantly drawn from that region. By the combined abdominal and vaginal operation the uterus may be delivered either through the abdomen or through the vagina. It makes little difference, however, which way is selected, because, having separated carefully the cervical attachments of the vagina below, the completion of the operation by

the abdominal route is rapid, and the peritoneum runs little if any more danger of infection than by the vaginal route alone.

The method which I advocate as the safest and most rational procedure for the radical excision of uterine cancer is first to separate by clean incision the diseased cervix from the vaginal mucous membrane by as broad a margin as possible without wounding the rectum, bladder, or ureters. The incision should be carried through the mucous membrane until the areolar tissue is reached; then dissection should be carried on by the finger or by some blunt instrument until we are close to the peritoneum, care being taken not to open the peritoneal cavity. It is, of course, necessary previously to have disinfected as far as possible the cancerous ulcerations. The hands should now be thoroughly sterilized, and the abdominal incision made with a second set of instruments. Having, in the manner described, separated the broad ligaments and isolated the ureters, we may rapidly connect the vaginal with the abdominal incision. The uterus may be delivered through the vagina or through the abdominal wound. If the mass is too large easily to be delivered by the vagina, the abdominal route should be chosen; not that it makes any great difference where the exposure is so brief, especially if the intestines, in the Trendelenburg position, are abundantly protected by sterile gauze. After removal of the uterus the folds of the peritoneum may be united by continuous suture, or a gauze drain may be provided through the vagina. In my experience there has been, by the abdominal method alone, a mild sepsis in two cases; by the vaginal method alone there has been a fatal general peritonitis in one case; all other cases have recovered without complications of any sort.

In clean hysterectomies, I think a continuous suture should be applied; in septic operations a free dependent drainage should be provided by leaving a gauze drain in the vagina.

The prognosis as to recurrence in even the most radical operation upon a cancerous cervix is bad; for, under the most favorable circumstances, the margin of healthy tissues seems utterly inadequate. A small cancerous nodule in the centre of a large breast demands excision of the whole organ, and even then recurrence is the rule. An infiltrating epithelioma of the lip requires in its proper removal the broadest possible margin of healthy tissue; and if that margin is a close one we look upon recurrence as almost certain.

In uterine cancer, therefore, the prognosis is necessarily bad if there is any extra-cervical infiltration whatever; and while under these circumstances hysterectomy is justifiable, its performance cannot be strongly urged. If the vaginal disease is extensive, only local palliative operations, performed extra-peritoneally, are justifiable.

CONCLUSIONS.

The advantages of the vaginal method are:

(1) Less liability to peritoneal contamination.

(2) More intelligent and thorough dissection of the local disease.

Its chief objection is the difficulty in controlling hæmorrhage.

The advantages of the abdominal method lie:

(1) In a conclusive investigation of the disease itself — its local extent and its possible remote metastases.

(2) In the rapidity and safety by which the broad ligaments may be tied and cut.

(3) In the ease with which the ureters may be isolated and kept one side.

(4) In control of hæmorrhage.

Its chief disadvantage is the impossibility of thorough dissection and removal of the cervical portion of the disease.

The superiority of the combined method is seen:

(1) In the intelligent and thorough dissection both of the local disease and the broad ligaments.

(2) In the certainty by which hæmorrhage may be prevented.

(3) In the protecting of the ureters.

(4) In the saving of time.

The combined method is applicable more especially to cases where the disease involves the cervix and a portion of the vaginal mucous membrane, and to cases in which the uterine body is large and fixed. It should also be employed where for any reason it may be difficult to separate the vaginal attachments.

CASES OF EXTRA-UTERINE PREGNANCY.[1]

BY CHARLES W. TOWNSEND, M.D.

THESE cases were seen within the space of six weeks.

CASE I. C. C., twenty-five years old, came to me in the out-patient department of the Massachusetts General Hospital, April 11, 1893, and gave the following history: Her previous health had been good. She had been married five months, and had never been pregnant before. The catamenia, previously regular, occurred last in the normal manner, from February 10th to 14th. Between five and six weeks later, on March 25th, she was seized with cramp-like pains in the right side, and there was a slight bloody discharge from the vagina. On April 4th, more active flowing began, which still continued. A few days ago a piece (described like membrane) was expelled from the vagina. During all this time she has had occasionally sharp pains in the right side, with a feeling of faintness.

Examination showed the uterus to be slightly enlarged and freely movable. In the right broad ligament a mass was easily felt, the size of a tennis-ball, moderately firm and tender on pressure. Tenderness was also present on the left side, but nothing definite could be felt there.

The case was believed to be one of right-sided, extra-uterine pregnancy, with beginning rupture of the tube, and was sent into the house. Here she was seen by Dr. H. H. A. Beach, who agreed with the diagnosis, and performed laparotomy at 5 o'clock the same day, removing a partially ruptured right tube, and finding a moderate amount of free blood in the abdominal cavity.

During the five hours the patient waited before getting her husband's consent to the operation, her color became perceptibly paler, her pulse rose from 80 to 96, she had several sharp pains in her right side, and it was believed, as was afterwards found at the operation, that bleeding was taking place into the abdominal cavity, showing that longer delay might have proved fatal.

CASE II. Mrs. L., thirty-two years old, also nulliparous. Had always been delicate, having had nervous prostration seven years ago, but no uterine trouble

[1] Read before the Obstetrical Society of Boston, June 10, 1893.

as far as she knew. The catamenia had been rather irregular; but she menstruated normally last, on January 5, 1893, and not again till March 2d, when she began, as she supposed, to miscarry. On March 3d, she had severe cutting pain in the pelvis, "like pleurisy pain," and she fainted. This fainting was apparently not due to the pain, as she felt easier just before she fainted. The flowing was very slight. A week later, March 10th, the pain became localized in the right side of the pelvis. On this day she passed a piece of membrane the size of the thumb, and it was supposed then that she had aborted. Since then moderate flowing continued, with occasional remissions of several days, until she was operated on April 15th. The pain in the right pelvis extending into the leg, came and went at frequent intervals.

I was asked to take charge of the case on April 3d, or a month after the beginning of the supposed miscarriage. For the last week her temperature had ranged from 99° to 100° or 101°.

Examination showed the uterus slightly enlarged and pushed over to the left side, and a mass the size of a large hen's egg was felt in the region of the right Fallopian tube. This was tender on pressure; but a few days later the tenderness disappeared, and the left side became tender, an obscure sense of resistance developing there.

Dr. G. S. Greene, of Dorchester, and Dr. W. L. Burrage saw her with me in consultation at different times, and both agreed with me in the advisability of a laparotomy. The diagnosis was obscure, and although extra-uterine pregnancy was thought of, in view of the elevated temperature purulent salpingitis following miscarriage was believed to be the more probable diagnosis.

On April 15th, at St. Margaret's Hospital, Dr. W. L. Burrage performed laparotomy, and removed a tubal pregnancy of the right tube. The following is his account of the operation:

"Assisted by Dr. Malcolm Storer. Ether. Asepsis by shaving and soap-poultice previous night, and, at time of operation, soap and water and nail-brush to abdomen, vulva and vagina, followed by saturated solution of permanganate of potash and oxalic acid.

"Curetting: A plug of yellow tenacious mucus in os uteri. Uterus well forward in pelvis, and fixed. An exudation on the right, larger, and also on the left, smaller. Moderate divulsion. Curetting brought away a small amount of tissue. Cavity of uterus two and three-quarter inches deep, seemed to be empty.

"Cœliotomy: Incision in usual situation, three inches long. Very little oozing; walls thin. Omentum found to be adherent to bladder; easily separated, and fundus uteri presented in the wound. Patient placed in Trendelenburg posture. A mass in the right side of pelvis, size of closed fist, and made up of the ovary (normal in size), blood-clots (some of them partially organized), and a firm, hard body the shape and size of a hen's egg, apparently in the outer portion of the right Fallopian tube. Adhesions were broken up gradually, and the mass, with its sac walls of organized blood-clots, freed. The tube was tied off close to the uterus, and several adhesions were ligated with stout silk. Fair amount of oozing. On the left side the ovary and tube were held together by a mass of adhesions, the tube being somewhat thickened, the ovary normal except for the adhesions. There was also much old blood, some of which had extended forward of the fundus uteri into the bladder. The tube and ovary were removed by tying the broad ligament across with interlocking ligatures of stout silk, and a gaping portion whipped with fine silk. Considerable oozing. Patient lowered from Tredelenburg posture, and the abdomen flushed several times with hot salt-solution; toilet of peritoneum. Sterilized gauze packed into pelvis, one piece into each side, and incision closed with interrupted sutures of silkworm gut. Two stitches in lower angle of wound left loose for the gauze. Wound dressed with dermatol, gauze and collodion. Length of both operations one and one-half hours. Patient put to bed in good condition.

"The gauze was removed in twenty-four hours, under partial chloroform anæsthesia. The patient pushed the bed-blanket directly on the wound; and to this was due undoubtedly the mural abscess that developed in the lower angle of the wound during the next few days. Patient passed flatus per rectum in thirty-six hours, and did well, until, at the end of a week, she developed a neuritis in the right median nerve.

"May 8th, when she began to sit up, there was no evidence of any exudate in the pelvis, the uterus was free from adhesions, except some limitation of mobility of the fundus, apparently from its being attached to the abdominal walls. The incision had closed completely, except a shallow cavity at lower angle.

"The patient left the hospital well on May 20th."

The following is Dr. W. F. Whitney's report on the specimen:

"The specimen from the case of Mrs. L. consisted of both tubes and ovaries.

"One ovary and tube (the left) was more or less glued together by adhesions and old clotted blood, which seemed to be partly organized on the outer surface of the tube, which was slightly dilated near its end. The ovary was normal in size and contained numerous small retention cysts, but no recent corpus luteum.

"The other ovary and tube (the right) were covered by adhesions and clotted blood. Near the fimbriated end the tube was enlarged to the size of a small egg, and contained a firm dark-red mass, more or less streaked by whiter and slightly fibrous-looking lines. It was quite adherent to the wall of the tube, which was more or less thickened, except along the line of attachment where the structure was loose and villous in character. Microscopic examination showed the mass to be made up of clotted blood in which were entangled irregularly formed and fatty degenerated chorionic villi and clumps of large flat cells (decidual). No evidences of fœtal structure were found. In appearance and in structure the condition very closely resembles one of the so-called "fleshy moles," the product of a uterine abortion, and is without doubt the product of a Fallopian pregnancy. The ovary was of normal size, and contained numerous small retention cysts, but no recent corpus luteum.

"The scrapings from the uterus were simply blood and a little of the mucous membrane, but with no evidences of a decidual. The other pieces were simply masses of more or less decolorized and pigmented blood-clot.

"The case is one of Fallopian pregnancy, with hæmorrhage and early abortion.

"The conditions found on the surface of the uterus was probably due to a partial organization of the blood-clot.

"The specimen is entered under E. g. 25, and is

most interesting, especially in relation to the condition of the material in the tube, which I shall study carefully after hardening."

The following case is added, presenting as it does many interesting points of resemblance with the other cases, although it was probably only a case of hæmorrhagic salpingitis.

CASE III. Mrs. T. was brought to me in the outpatient department of the Massachusetts General Hospital on May 19, 1893, by Dr. McKenty, of Waltham, from whom I obtained a very good history of the case, and had the advantage of his previous examinations, which he had carefully recorded. He had made a probable diagnosis of extra-uterine pregnancy, but had also considered the diagnosis of fibroid. The patient was thirty-six years old, a multipara, having had three children (the last eleven years ago) and two miscarriages (the last seven years ago). Her catamenia were previously regular, and from March 6th to 11th she menstruated as usual. On March 15th she again began to flow, and continued up to her coming to the hospital, the flow being generally slight, but at times copious. With the first flow on March 15th she began to have pain, sharp and cutting in character, in the right iliac region. After April 10th the pain was less severe and less frequent. She had attacks of feeling faint at the time of this pain. The pain extended down the right leg.

On April 9th she was examined for the first time by Dr. McKenty, whose record is as follows: "Uterus normal in position, and movable. Movable mass situated behind lower segment of the uterus, and connected with it by a band-shaped peduncle. At first this seemed like a prolapsed ovary, but careful examination revealed what I considered the ovary at its outer border. Left ovary in position. Sound passed full depth."

Dr. McKenty examined her again on April 18th and 26th, and on May 5th and 15th. During this time the mass grew rapidly, and it became more intimately connected with the uterus. At no time was there any fever or signs of inflammatory trouble.

My examination in the hospital, May 19th, showed the uterus slightly enlarged, and pushed over to the left side. A mass, oval in shape and of the size of a large hen's egg, was felt in the right broad ligament, connected with the uterus by a slightly smaller pedicle. The mass was rather soft, but not fluctuating, at the outer extremity; elsewhere hard, but not as hard as a fibroid tumor.

The diagnosis of extra-uterine pregnancy seemed by far the most probable diagnosis; and the patient was prevailed upon to enter the house. She entered the service of Dr. H. H. A. Beach, who considered extra-uterine pregnancy the probable trouble, and who operated three days later, on May 22d, removing the right tube, distended with blood and partially ruptured. The specimen was sent to Dr. Whitney, who was unable to find either chorionic villi, decidual cells or part of fœtal structure. By exclusion, therefore, he considered it a case of hæmorrhagic salpingitis.

All the patients made good recoveries.

THE following remarkable verdicts are reported as returned by English coroners' juries: "Man, aged forty-eight, died from stone in the bladder, which stone he swallowed when lying on a gravel path in a state of intoxication." "Child three months old, found dead, but no evidence whether born alive."

Clinical Department.

POISONING BY VANILLA.[1]

BY JAMES C. WHITE, M.D.

I WANT to make brief mention of a rare case of dermatitis venenata, at least rare in this part of the world. A man came into my room at the hospital not many days ago with a puffy face, eyes partially closed, and presenting upon one wrist and forearm various forms of inflammatory lesions — papules, general redness, and a few vesicles. I asked him what his occupation was, and he told me that he had been twice affected in the same way since he had been engaged in his business for the past two years. This business was the management of a vanilla commission house.

Now, poisoning by vanilla pods or beans, in the countries where this plant is cultivated, is reported as not very infrequent among the workmen. This plant is cultivated in Mexico, Central America and the West India Islands, and also in the East. It grows best in Mexico. The beans are collected, put through a "sweating process," are turned frequently under blankets, and sometimes submitted to artificial heat until they assume a dark chocolate or blackish color. In handling these pods many of the workmen have a dermatitis produced upon their hands and face, and this inflammation of the skin has been attributed to two causes. An acarus affects the pods, and formerly these cases were attributed to the irritative action of this little insect upon the skin. But this is very improbable, because the inflammation comes on too rapidly, and is of a different type from that produced by the presence of any animal parasite upon the skin. In the best variety of pods no artificial means are used for coloring them. When I was writing upon this subject a few years ago, I took occasion to visit the establishment of Mr. Burnett, and inquired about the workmen employed in his factory. He said that no cases of vanilla poisoning had ever occurred there, and he attributed this immunity to the fact that he used only the highest quality of pods. The greatest care is taken in the care of the highest-priced pods, and after they reach the United States they undergo often an additional treatment, if they are not quite cured. They come in sealed tin boxes. Now in the lower qualities of pods it is known that an artificial method is used for coloring them black, and that this material is the oil of the cashew nut found in the rind, called cardol. This nut is the fruit of Anacardium occidentale, and is grown in the West Indies largely, and eaten both raw and roasted. The oriental species is called the Indian marking nut, as it has the same property of turning black any substance with which it comes in contact that the juices of the poisonous forms of rhus possess, and it has likewise the same poisonous quality that they have, so that many cases of poisoning are produced by persons handling without sufficient care these nuts. Charles Kingsley, in his work on the West Indies, describes several cases where cooks and others have been poisoned by roasting them. Cardol is used to color the poorer qualities of vanilla pods, such as these upon this plate, which are a part of the box which produced the poisoning in this patient. They are of the poorer variety, and are worth about four dollars a pound, whereas the specimens in the other tray are

[1] A communication to the Clinical Section of the Suffolk District Medical Society at its meeting February 15, 1893.

worth about twelve dollars a pound. The color of both is about the same. There is no doubt, I think, that these poorer ones have been colored by cardol.

Now, as rare cases are very apt to happen together, I may state that I have this winter seen my only case of poisoning by the cashew nut. A lady living in Cambridge had received from the West Indies some of these nuts, and in opening them she was very badly poisoned about her face and hands, presenting bullæ and vesicles and intense swelling lasting ten to fourteen days. There can be little doubt that these cases of so-called vanilla poisoning are from the cardol of this nut.

You may have heard of cases of internal poisoning by vanilla. When I was a student in Vienna, Professor Oppolzer used to say that patients could have any ice cream excepting that flavored with vanilla. Now it is known that cardol taken internally produces very serious irritative disturbance of the stomach, so that it is not improbable that these poorer forms of vanilla bean may have been sent to Germany, and that a possible poisoning by cardol from the ice cream flavored with vanilla may have ensued in some cases, which gave it the reputation it had in Vienna at that time.

I have never heard of any trouble from vanilla ice cream here, and supposed that it was a notion on the part of Vienna physicians. It is Dr. Shattuck's habit, he states, in suggesting ice cream for feverish children, to take pains to suggest that they had better have vanilla, as being more innocent than other kinds.

I might add that Mr. Burnett stated that he had never known an instance of vanilla poisoning by the internal use of his vanilla. He also said that his extract was largely used as a cordial, and that he had known of no trouble resulting therefrom.

AN EXTENSIVE INJURY OF THE CHEST.

BY O. T. HOWE, M.D., LAWRENCE, MASS.

On October 28, 1892, Fred. A., eleven years old, was caught between two freight cars in South Lawrence. The train was shifting and he attempted to go between two uncoupled cars; but the engine backed at that moment, and he was caught between the couplers. The engine was immediately started ahead, and the boy taken out. Despite his injuries, he walked home, nearly an eighth of a mile, and a physician gave temporary treatment.

The case was placed in my hands, and I saw him the next morning for the first time. The patient was then in a state of collapse; no pulse; the body bathed in cold sweat; and the bed afloat with blood. With every inspiration bloody foam came from the wounds, back and front.

According to his statement, the coupler-pin had passed entirely through the body. I gave a gloomy prognosis; but under stimulating treatment he slowly rallied. A careful examination of his injuries showed that four of his ribs in front and three behind, were crushed in, forming compound, comminuted fractures. The anterior wound was about four inches long, and had been drawn together by stitches. The posterior was on the same level, but smaller.

In a few days the stitches were taken out, and a drainage-tube passed through from back to front. It was then possible to look directly through the chest, and see the lung, partly collapsed, dilate with each inspiration.

The discharge of bloody serum for the first few days was very large, soaking through the antiseptic dressings in a few hours. This was followed by an equally large discharge of pus; but the boy continued to improve. He had a slight cough, which was very painful.

Three of the ribs which were broken at the anterior angle, gradually pushed their way through the skin, and protruded about an inch from the chest wall. The patient was etherized, all the loose fragments removed, the projecting ribs cut off, and the opening in the back enlarged. It was then possible to insert the hand in the anterior opening and examine the whole interior of the chest. The lung by this time had granulated and healed, and was much collapsed.

Healing was very rapid, and by May both wounds had completely closed. The chest wall on the injured side had collapsed so that it did not seem much thicker than a two-inch plank.

At present, August 10th, the boy is in good health, fat, with no cough. There is faint respiration on the affected side.

Medical Progress.

REPORT OF PROGRESS IN GYNECOLOGY.

BY F. H. DAVENPORT, M.D.

BIOLOGY OF FIBROMYOMATA OF THE UTERUS.

Kleinwächter[1] from the study of forty cases of fibromyomata of the uterus, where he was able at longer or shorter intervals to make repeated examinations, has deduced the following conclusions as to their growth. He is unable to find any such law of growth as would enable him to estimate the age of a tumor from its size. They may grow very rapidly, and this is the rule in the majority of cases; exceptionally they grow slowly. Sometimes they have periods of growth, followed by periods of quiescence. It is rarely the case that before the menopause a tumor ceases to grow or becomes smaller. Ergotin may help in some cases, so, too, wasting diseases. Tumors sometimes diminish after the puerperium. The disappearance of fibromata after the menopause is by no means so common as has been supposed; not infrequently they increase in size, and it seems as if, at this time, there was the greatest danger of malignant degeneration. The cause of the different behavior of these growths is not clear. It may be due to a difference in the anatomical structure, according as muscular or connective tissue predominates. Also the original seat of the tumor or its germ may be of influence. Other causes may be its blood-supply and the presence of inflammatory processes in the neighborhood.

CURE OF MASTURBATION IN A WOMAN BY NEURECTOMY.

Dr. J. S. Eastman[2] gives the account of an aggravated case of masturbation cured by resection of the pudic nerve. The patient was a single woman of twenty-six years of age, who had masturbated since she was six years old. The indulgence was one or more times a week and even as often as six times in

[1] Zeit. für Geb. und Gyn., Band xxv, Heft 2, 1893.
[2] Medical News, August 12, 1893.

one day. For a while she indulged in coitus, though without satisfaction, yet was able to resist self-abuse while the opportunity for sexual intercourse lasted.

When this was no longer the case she reverted to her former habit. She then sought medical advice. She was blistered, silver-wire sutures were placed through the labia majora, the electro-cautery was applied, ovariotomy, and finally, clitoridectomy, were performed, all without avail.

As a last resort, Dr. Eastman having found that she was more sensitive on the left side of the vulva than on the right, cut down on the left pudic nerve, and removed about three inches of it. The result was perfect. The patient gained thirty-four pounds in weight and was completely cured of her habit of masturbation.

VAGINAL LIGATION OF THE BROAD LIGAMENT FOR HÆMORRHAGE.

Dr. F. H. Martin,[3] in connection with a case where the uterine arteries as large as lead-pencils were pumping blood into a large bleeding fibroid, conceived the idea of ligating them from the vagina, where they can be easily reached. To avoid the blood being supplied by collateral circulation, he advocates tying the main artery back of the uterine branch, and by including *en masse* the whole base of the broad ligament to shut off any anomalous branches should they exist.

The article goes on to describe the distribution of the arteries in the broad ligament, and then describes the operation, which consists in an incision in the vagina one and a half to two inches long, over each broad ligament and at right angles to it, freeing it in front, laterally, and behind, then passing a silk ligature so as to include all pulsating vessels and tying it tightly, an inch or more away from the uterus and closing the vaginal incision. He gives the histories of two cases, in which he had operated, and while the immediate effect was good, it was too recent to judge of the ultimate result.

He advises this procedure under the following conditions:

(1) Acute hæmorrhage from the cervix from all acute and chronic causes, which cannot be readily controlled by mild measures, as (*a*) rupture of the cervix in childbirth, by operation or any other cause; (*b*) cancer of the cervix.

(2) Hæmorrhage from the body of the uterus as a result of abnormal growths: (*a*) fibromyomata; (*b*) sarcoma; (*c*) carcinoma; (*d*) intractable hæmorrhagic endometritis.

(3) For the purpose of changing the nutrition of myomatous tumors so that they will shrink in size, and when of small dimensions disappear altogether.

RECURRENCE OF CANCER OF THE UTERUS, ESPECIALLY BY LOCAL INOCULATION.

Winter[4] makes the statement that, even with the advances of the last fifteen years, we can show but seven per cent. of lasting cures. Recurrence is the rule, and, in the vast majority of cases, is from local inoculation, most often the result of the leaving of bits of cancerous tissue, either outside of the field of operation or in contact with some wounded surface.

To avoid such an occurrence, Winter warns against handling the diseased tissues with the fingers, against tearing the tissues and advises frequent irrigation. Where the disease is within the cervix or body, the uterus should be washed out and the os uteri sutured. Disease of the vaginal portion should be made harmless by cauterizing it and by treating it with corrosive sublimate and Paquelin. Such preparatory measures should be taken immediately before the main operation, which should be done after fresh disinfection, with new instruments.

INDICATIONS, TECHNIQUE AND RESULTS OF OPERATIONS ON THE APPENDAGES.

Schauta[5] presented a paper on this subject before the German Gynecological Association at Breslau in May, 1893, of which the following is a synopsis:

(1) The frequency of inflammatory diseases of the appendages is according to Schauta's own material, 17.8%.

(2) A permanent return to normal conditions is not to be expected when the tube as a result of inflammatory changes has become as thick as a finger.

(3) The diagnosis of the contents of the enlarged tubes (whether sterile, or containing gonococci, streptococci or staphylococci) cannot be made with accuracy either from the history, the examination, or the course of the temperature.

(4) Fever temperatures may be found before the operation, in cases of sterile contents, and completely normal temperatures where the tubes contain pus with streptococci or staphylococci.

(5) The indications for operative treatment are present when the tube is the size of the finger and severe symptoms are present; in every case, however, where pus is present in the tube.

(6) In case of the escape of pus during the operation, the immediate bacteriological examination of the pus is of great importance.

(7) Where the tumors are of moderate size, and no pus is seen during the operation, it should be performed in the Trendelenburg position, and after complete separation of all the adhesions of the tubes with the surrounding parts, and thorough unfolding of the broad ligaments, continuous ligatures should be placed through the broad ligament and the isthmus of the tube, and then the tube should be cut away.

(8) In the case of large tumors lying close to the abdominal wall the procedure is as follows: The peritoneum is opened, and if the opposite side is diseased to a less degree, the appendage of that side is removed; the large tumor is brought up against the abdominal opening and attached to the parietal peritoneum around a small circumference; the rest of the abdominal wound is closed. Then the pus tube is punctured with a fine trocar, a portion of its contents aspirated, and immediately subjected to a bacteriological examination. If the pus proves to be sterile the sac is immediately opened to the extent of the exposed surface, washed out, the peritoneal sutures separated and the sac removed in the usual way. Should the pus prove to contain strepto- or staphylococci, the operation is temporarily suspended, and only after four or five days when the peritoneal cavity is completely shut off is the incision and drainage of the tube carried out.

(9) In case of large pus sacs lying close to the vaginal vault, the opening from the vagina is indicated. Still in general the abdominal method is to be preferred since in the vaginal method one is denied the possibil-

[3] American Journal of Obstetrics, April, 1893.
[4] Archiv. für Gyn., Band 44, Heft 3.
[5] Cent. für Gyn., No. 22, 1893.

ity of seeing the condition of the other side, or of operating on it, unless the method of total extirpation of the uterus according to Péan is followed.

(10) In cases of medium sized tubes (size of an egg to that of an orange) laparotomy with careful avoidance of opening the sac is to be carried out. Should the sac burst, the pus should be immediately examined. If sterile, or containing gonococci the abdominal wound may be closed as usual; if containing strepto- or staphylococci Douglas's pouch which has been in contact with the pus should be drained after the method of Mikulicz.

(11) The draining of Douglas's cul-de-sac is effectual first by drawing off the secretions, but principally by the speedy formation of adhesions which separate the part to be drained from the rest of the peritoneal cavity.

(12) The mortality of Schauta's 216 cases from February, 1887, to April, 1893, was 13 or 6%. Two of these, however, died of pneumonia.

(13) The mortality of the cases of operations on the tubes where no pus or only sterile pus was found was 2.8% (four out of one hundred and forty-four); the mortality where gonococci were found in the pus was 9% (three out of thirty-three); the mortality where strepto- or staphylococci were found was 20% (three out of fifteen). Of the cases of the last category, with escape of pus, of six drained, one died, of five not drained, two died; of cases of laparotomy without escape of pus, and a second operation later, and of vaginal opening (four cases) none died.

(14) For the estimation of the final results, Schauta has reports of 121 cases. One hundred were free from any disturbance, in 17 cases there was marked improvement, in four cases the old troubles persisted. The percentage of cures therefore was 82.6%.

THE PALLIATIVE TREATMENT OF CARCINOMA OF THE CERVIX UTERI.

Sänger[6] says that on taking a historical view of the methods of treatment of carcinoma of the uterus, it is noteworthy that long before the total extirpation of the diseased organ was thought of, C. v. Braun was able to show 20% permanent cures with the galvano-cautery wire, a percentage which, according to Winter, has only increased to 25% after total extirpation. It is a sad fact that only one-fourth of the patients come to the gynecologist in time for a radical operation. Cases which are far advanced, that is to say, where the disease has invaded the vesico-vaginal septum, the tissues around the cervix and more remote portions of the pelvic connective tissue, can only be treated palliatively.

Palliative treatment is either operative or non-operative. The last comprises astringent disinfecting injections, tamponing with soluble specifics, or the use of powders and caustics, and medicated injections.

The most favorable method is the use of caustics after thorough curetting. The course is as follows: curetting, cauterization with Paquelin, and after the separation of the slough, tamponing with chloride of zinc. This is applied in a solution of two parts to three of water, dropped upon thin layers of cotton, these well squeezed out and laid upon the granulating surface, and the vagina filled with dry cotton.

In conclusion, Sänger gives a new method which consists in the burning out the cervix with the thermo-cautery knife, not from the surface of the cancer but from the side of the healthy tissue. The technique is as follows: a broad speculum is used for the posterior vaginal wall. What remains of the cervix is seized with forceps and drawn down. First, a circular separation of the vaginal vault, then under control of the catheter, of the vesico-cervical septum, then of one parametrium, of the retro-cervical connective tissue, and finally of the other parametrium. Gradually this is carried on up to the peritoneum, then the cervix is burnt square off, and the mucous membrane of the body of the uterus cauterized as far as it can be reached.

Occasionally must the bleeding vessels be tied. Then an iodoform gauze tampon, and after the separation of the slough, cauterization with chloride of zinc. Of five cases so treated, only one showed a recurrence, the first having been nearly three years free.

[6] Cent. für Gyn., No. 31, 1893.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

Regular meeting, June 10, 1893, the President, Dr. Charles M. Green, in the chair.

Dr. F. B. Harrington read a paper on

INTRAPERITONEAL CYSTOTOMY,

in which he showed the great advantages of this operation in giving a large and clear view of the bladder field.

Dr. M. H. Richardson considered the operation a distinct improvement on the ordinary suprapubic method. The objection might be raised that there was more danger of sepsis. He did not believe that urine is aseptic, but in the method described of using gauze in the Trendelenburg position, he considered this danger very slight, certainly less than in operations where the alimentary canal was opened. The great advantage of the operation was that one could see to work intelligently and this advantage counterbalanced any disadvantage there might be. He intended to try the operation, and expected good results.

Dr. H. H. A. Beach said that the operation certainly seemed a very practical one. As to the septic danger, he saw no more than in salpingitis. It was certainly an important method where ample light in the interior of the bladder was needed. He suggested, in addition to the precautions advised, the use of a dentist's rubber dam slipped over the bladder.

Dr. S. J. Mixter was so fortunate as to see Dr. Harrington operate in this manner, and was impressed with the good view of the interior of the bladder and the ease with which a new growth could be removed. Some years ago he saw a case in Vienna where the bladder was opened in the same way for an enormous stone that filled up the entire viscus.

A temporary packing with iodoform gauze in the abdominal cavity might be necessary in certain cases to prevent the escape of urine, the packing being left in twenty-four hours, until first intention was obtained.

As to the septic qualities of urine it was the case that extravasation of urine, behind a stricture, was surely followed by abscess. Of course, the urine was

foul in these cases, but it generally was when the bladder had to be opened. Hence, contamination of the peritoneum would be likely to cause peritonitis.

DR. H. H. A. BEACH mentioned a case where the round of a chair entered the rectum and tore into the bladder through the prostate. Here, with a healthy bladder and urine, the patient escaped peritonitis.

DR. F. B. HARRINGTON said, that, as to the urine, there was no doubt that foul urine was septic, and he thought that any urine allowed to stay in the abdominal cavity would set up peritonitis; but where it was at once wiped away he did not think the patient would suffer. The rubber dam suggested by Dr. Beach he thought would answer very well in some cases. By this operation it was very easy to take out a section of the bladder an inch wide, as in cases of epithelioma; and he was much impressed with the ease with which the whole bladder field could be viewed and operated on.

DR. M. H. RICHARDSON read a paper on

HYSTERECTOMY FOR CANCER OF THE CERVIX BY COMBINED ABDOMINAL AND VAGINAL DISSECTION.[1]

DR. F. B. HARRINGTON said that the combined method promises increased advantages. In either of the older methods it was difficult to avoid the ureters, the cutting of which was frequently the cause of death.

DR. J. G. BLAKE said he himself was in the habit of curetting and cutting off as much of the disease as he could, keeping it thus under subjection, and relieving the distressing symptoms. This palliative operation is simple, and without risk to the patient, while hysterectomy was, at its best, by the combined method, a much more dangerous operation. Moreover, he had found, on looking up the subject, that the ultimate results were no better by the radical operation, all the patients being dead inside of five years. He would therefore prefer the simple palliative operation.

DR. J. R. CHADWICK said he had done seven or eight vaginal hysterectomies and two abdominal ones. He had found that the results, in his own and others' experience, from the abdominal operations not as good as from the vaginal, notwithstanding the greater dangers of this latter method, in which one was obliged to work in the dark, and where it was so difficult or impossible to make the vagina aseptic.

DR. BEACH said he thought comparison of statistics on these two operations was hardly fair, for the abdomen is generally opened in the severest cases.

DR. M. H. RICHARDSON said that the operation had a very limited field, He had seen an enormous number of cancers of the uterus, and of these only four where he believed the operation was justifiable.

DR. CHARLES W. TOWNSEND reported

CASES OF EXTRA-UTERINE PREGNANCY.[2]

DR. H. H. A. BEACH said that the surgical side of the interesting cases presented by Dr. Townsend demonstrated clearly certain advantages to the patient from an early diagnosis and a prompt exploration of a pelvic cavity under suspicion. It was of the first importance that an operation of the magnitude of a laparotomy, which also involved the possibility of an increase of hæmorrhage already existing, should be undertaken, if a choice could be made, at a time when the general condition promised rapid recovery. Such a condition was not likely to be associated with the anæmic and debilitated patient enfeebled by successive hæmorrhages, with or without the addition of a septic element due to the putrescence of clot which might have been effused into the pelvic peritoneum or into the broad ligament. So unfavorable an element in the case was to be avoided only by an early removal of the clot, which was as likely to complicate the healing process as it was the operation. Other important advantages accruing to the patient through early surgical treatment were the ample time afforded for critical and careful examinations, such as would hardly be permissible in desperate cases where life hung on a few moments, more or less, in the preparation for operation; and last, but by no means least, the deliberation with which the most rigid antisepsis could be applied throughout an operation. Inadequate antisepsis in these cases, unless practically impossible, was almost criminal; and we all knew the value of time in that part of the preparations. It was hardly necessary to allude to the great advantages in the use of the Trendelenburg position in these cases. The intestines were so rapidly and easily moved from the field of operation that he did not need to urge its value for those who had used it and seen it used. After the toilet of the peritoneum, the wounds were closed with deep stitches of silkworm gut, apposing the peritoneal surfaces with superficial stitches of fine silk.

In addition to the cases reported by Dr. Townsend, he added the notes of another that was sent to the hospital by Dr. J. R. Chadwick. The patient entered the hospital May 5th, with the history of pain in the stomach, and indigestion, for about a month. She had taken cold in the early part of April, while menstruating (second day). A few hours after, she noticed that the flowing had ceased, and she was seized with severe pain in the pelvis. Hot applications relieved the distress, but did not bring on flowing. She was able to go out later in the evening to the theatre. Two days later, flowing appeared, without clots. Was feverish, and feeling poorly during the rest of the month. In the last week of April the old pain returned with greater severity, and after a night of excruciating suffering she sent for her physician, who treated her during the week, and, as the pain continued severe, called Dr. Chadwick in consultation, by whom she was referred to the hospital.

Upon entrance her temperature was 101.5°, and her pulse 110. This condition quieted down to normal, with poulticing and hot douching. As soon as the tenderness had subsided so that an adequate examination could be made, there was evident an enlargement of the right Fallopian tube, and a larger mass below it and extending toward the posterior cul-de-sac. The menstrual dates were not certain. The last child was eight years old, and there had been opportunity for pregnancy. There was no history of continuous flowing. The uterus slightly enlarged. Laparotomy advised. Upon opening the abdominal cavity the right tube was seen distended by clot, which was just upon the point of rupturing backward into the peritoneal cavity. The tube was tied off and excised; as it was lifted, a second cavity was found, extending downward between the layers of the broad ligament, and forming the larger mass before alluded to. It was distended with nearly a pint of dark coagula, which were carefully removed, and the cavity sponged until it was dry, after which the abdomen was tightly closed without

[1] See page 436 of the Journal.
[2] See page 438 of the Journal.

drainage. The temperature rose to a fraction above 100° on the second day, and after that ranged about normal. The wound healed solidly, and all the stitches were removed on the seventh day.

Dr. S. J. Mixter reported

A CASE OF OVARIAN TUMOR WITH TWISTED PEDICLE; OPERATION, RECOVERY.

He also reported

A CASE OF FIBROID OF THE UTERUS; HYSTERECTOMY, RECOVERY.

Specimens were shown.

Dr. F. B. Harrington said he had been taught that a pregnant fibroid uterus would take care of itself; but this was not always so. He had recently seen a case of multiple fibroids of the uterus where both mother and child died. He regretted that he had not removed the uterus at an early stage.

Dr. J. G. Blake mentioned a case of fibroids that miscarried, and it was with great difficulty that he could get out the placenta and membrane, as he had to curette around corners, so to speak. The patient finally recovered.

Dr. C. M. Green said there had been a number of cases of fibroids complicating delivery at the Boston Lying-in Hospital. He recalled one case he had seen with Dr. Boardman, where the pelvis was at first entirely blocked up; but the tumor receded, and the patient was delivered. In another case the same thing happened. And in a recent case, it seemed impossible for the child to be born; but the tumor receded, the child was delivered, and by the time the patient left the hospital, the fibroid had so diminished in size there was but little remaining.

Cases of fibroid tumors might or might not go to full term. The great majority did so, and got on well. There had been probably five cases at the Lying-in Hospital where the tumors were so obstructive that an abdominal operation was thought of, but all delivered themselves through the natural passages.

He would doubt very much whether Dr. Mixter's case would have gone to full term.

Dr. J. R. Chadwick had seen fifteen or twenty cases of fibroids complicating pregnancy; and with one exception they all went to full term. There was a little tendency to uterine inertia and hæmorrhage, but he considered it a happy thing for a fibroid uterus to become impregnated, for in a large proportion of the cases the fibroids diminished in size after delivery.

AMERICAN NEUROLOGICAL ASSOCIATION.

Nineteenth Annual Meeting, Long Branch, N. J. July 25, 26 and 27, 1893.

(Concluded from No. 17, page 424.)

TABES AND SYPHILIS.

Dr. H. Sachs, of New York, assumed that recent statistics of Erb and others proved the close relationship between syphilis and tabes. This was established furthermore by:

(1) The frequent occurrence of general paresis with tabes, and of tabes in the course of general paresis.

(2) The occurrence of symptoms in the course of tabes which are often due to syphilis: the ocular palsies, loss of pupillary reflexes and even the lightning pains.

(3) The effect of mercurial and iodide treatment upon many of the symptoms of tabes.

The writer attempted a clinical differentiation of cases of tabes which are due to an active syphilitic process; among these he considered those which exhibit complete loss of reflex contractility of one or both pupils, and ocular palsies. He reported at length a case of typical tabes, in which on post-mortem examination a more recent syphilitic process was superimposed upon an old typical sclerosis. He next referred to the way in which syphilis might cause a spinal sclerosis. He gave reasons for thinking that this was largely due to degeneration brought about by syphilitic disease of the blood-vessels to the spinal cord. Altered states of the blood might be the prime cause of the change in the blood-vessels.

Dr. Preston regarded the syphilitic process as an arterio-sclerosis. Rarely is there hyperplasia of neuroglia, without changes in the cells or nerve-fibres. The tabetic process probably begins in the blood-vessels. Traumatism seemed to be a most important etiological factor. He had seen improvement and relief of pain from the use of nitro-glycerine.

Dr. Mills looked upon the active lesions described by Dr. Sachs as probably causative of the sclerosis. Preceding the development of the sclerosis there may be lepto-meningitis and disease of the vessels, which, if attacked early, might be relieved or removed; but the sclerosis once established, recovery is impossible. Posterior sclerosis often advances at intervals by jumps, and these jumps may be sometimes coincident with, or they may follow the revival of active syphilitic processes.

Dr. Parsons referred to two cases of syphilis followed by insanity and subsequent development of spinal symptoms.

Dr. Seguin still adhered to the idea that syphilis was only a predisposing cause for the groundwork of tabes. Certain cases occur that were undoubtedly free from any history or evidence of syphilis.

Dr. Knapp mentioned a case of primary syphilis being superadded to tabes of two or three years' standing.

Dr. Spitzka did not doubt that cases of tabes existed without syphilis. He had called the attention of the Association to the same pathological condition about eight years ago.

Dr. Walton thought the frequency of trauma in the production of tabes was overestimated. The ascending degeneration resulting from transverse lesions of the cord or from fracture can hardly be regarded as a typical tabes. If we could get at the real facts in all cases, the cases in which syphilis existed without our being able to elicit the history would more than counterbalance those in which we may mistake a chancroid for a sign of syphilitic infection.

Dr. Gray said that there was an anatomical explanation for every symptom in tabes. In all cases he had seen he could differentiate between spinal syphilis and tabes.

Dr. Sachs did not claim that spinal syphilis is the same as tabes. We should never omit prescribing the most active anti-syphilitic treatment in the early stages of tabes. He did not believe every case was due to syphilis. In the large majority of cases syphilis was the prominent factor.

A NEW PEDODYNAMOMETER.

DR. WM. C. KRAUSS, of Buffalo, exhibited a new pedodynamometer. The apparatus consists of a wide heavy belt, its inner surface padded so that its adjustment around the waist will not be uncomfortable. A heavy webbing is looped through the belt passing over the shoulders, which helps to retain the belt in position. A common dynamometer is connected with the belt by means of a strong adjustable strap, permitting it to be lengthened or shortened according to the stature of the patient. Connected with the dynamometer is a stirrup, the base of which is padded for receiving the foot. Pressure exerted upon the stirrup will be registered upon the dial of the dynamometer, and the exact strength of the extensors of the leg can be thus ascertained. The apparatus can be applied either in the standing or recumbent posture. The leg should be flexed about ninety degrees at the knee. To tell the strength of the calf muscles, the strap should be lengthened and the foot flexed upon the leg.

INFECTIOUS ENDOCARDITIS WITH GENERAL SEPTICÆMIA COMPLICATED WITH MULTIPLE NEURITIS.

This paper was a joint communication by DRS. JAMES H. LLOYD and DAVID RIESMAN, of Philadelphia. It was founded on the report of two cases.

The first case was in a man who was admitted to hospital with a typhoid type of fever which had continued for three months, and was complicated with multiple neuritis. The diagnosis of typhoid fever was excluded. The neuritis was irregularly distributed. The patient gradually developed an aortic regurgitant murmur, with water-hammer pulse. Later, a purpuric eruption appeared. A diagnosis was made of infectious endocarditis with secondary septic neuritis. At the post-mortem, immense vegetations were found on aortic valves, with infarcts in the spleen and in one kidney. Sections of the spinal cord and nerves were shown, exhibiting slight posterior sclerosis in the cord and extensive inflammation in the nerves.

The second case, also in a man, simulated typhoid fever, with yellow-colored stools. At the post-mortem, multiple abscesses in the brain, a large embolus in the left brachial artery and an infarct in one kidney were found, dependent upon a giant growth of vegetations as large as a pullet's egg attached to the inner coat of the aorta, overhanging the orifices of the innominate, carotid and subclavicular arteries.

DR. DANA regarded the septic origin of neuritis of much importance. He cited the case of a young man with symptoms of rheumatism not responding to antirheumatic medication. Pyelitis developed in two or three weeks, followed by multiple neuritis affecting all extremities. It is well known that multiple neuritis in this country is most frequently due to alcohol, and not of microbic origin. These forms of neuritis have a different clinical history. Some cases have begun with a history of multiple neuritis, and have then shown symptoms of locomotor ataxia or other spinal cord affection. There is also a class of cases where the neuritis extends and ultimately involves the spinal cord.

DR. DERCUM agreed with Dr. Dana's views and believed posterior sclerosis occasionally followed multiple neuritis. He asked if septic symptoms preceded the neuritis in Dr. Lloyd's case with history of alcoholism; to which Dr. Lloyd answered yes.

TUMOR OF THE ANGULAR GYRUS.

DR. G. L. WALTON, of Boston, reported a case of tumor involving the angular gyrus and extending into the temporal, occipital and parietal regions. The symptoms were temporal and occipital headache, vomiting, paralysis of the left abducens from pressure, double optic neuritis, hemianopsia, word-blindness, aphasia and word-deafness. Operation was attempted by Dr. Richardson, of Boston. The tumor, however, proved too large and diffuse for removal. The patient lived two months with comparative relief of pressure symptoms, including abducens paralysis. Toward the end, the right hand and arm became somewhat paretic. The autopsy showed the growth to be a glioma.

DR. SEGUIN suggested that the ocular symptoms were probably not due so much to lesion of the angular gyrus as to involvement of the fibres of the fasciculus opticus which lie immediately under it. The lesion being rather deeply placed must necessarily involve the white fasciculi.

DR. WALTON agreed with Dr. Seguin that the hemianopsia was due to affection of the optic radiations on their way to the occipital lobe. The early appearance of mind-blindness together with red spots in the field of vision suggested early cortical irritation in the region of the angular gyrus.

If the symptom mind-blindness is considered due to affection of association fibres, we are justified in assuming the association fibres implicated to be those running to the angular gyrus.

CONGENITAL CEREBRAL HEMIPLEGIA WITH AUTOPSY.

DR. E. D. FISHER, of New York, read the history of a case of infantile cerebral hemiplegia of congenital origin. The symptoms were a complete right hemiplegia, with marked atrophy and exaggerated reflexes, epilepsy and imbecility. The cranial measurements showed morbid deficiency in the binauricular diameter and facial length. At the autopsy, the left hemisphere was found much atrophied. The right cerebellar hemsphere was also atrophied. The microscopical specimens showed a decrease in the number of cortex cells, but those present were not much diminished in size. There was some loss of acuteness of the angles of the cells but little pigmentary or granular changes. The cord was but slightly affected. He believed that this would seem to show that in some cases we may have a fair amount of normal cerebral structure even when there is such pronounced cerebral disease.

DR. SACHS said that in the cases in which motor areas present developmental defect, degeneration does not necessarily occur.

LESION OF THE THALAMUS AND INTERNAL CAPSULE.

DR. CHARLES K. MILLS, of Philadelphia, contributed the notes on a case in which there was a lesion of the thalamus and internal capsule.

The patient had an apoplectic attack in 1877, and died in 1892. The symptomatology of the case, summarized, was hemianæsthesia, paresis with contractures not marked, inability to recognize position of the affected limbs. Hemianopsia, and all affections of the special senses were absent, as were also athetoid and choreoid movements. Autopsy showed a hæmorrhagic cyst which had destroyed about two-thirds of the substance of the thalamus, including the entire external

tubercle and a large portion of the pulvinar. The anterior extremity and the internal and inferior surfaces of the thalamus were intact. The lesion has invaded to a slight extent the posterior arm of the capsule.

TUMOR OF THE OPTIC THALAMUS.

Dr. Wharton Sinkler, of Philadelphia, read a paper on this subject, and presented the specimen from a case with the following history:

The patient was an unmarried woman, forty-six years of age, who was in excellent health up to January, 1893. Her first symptoms were somnolence and loss of mental vigor. Her manner was indifferent and listless. In April there was some aphasia, and, later, paresis of the right side of the face, unsteadiness of gait, and awkwardness in the use of the right hand. When first seen by him, there was marked paralysis and partial anæsthesia of the right side of the face, but no impairment of sensation of the arm or leg. There was decided mental hebitude but no loss of memory. She could not walk on account of unsteadiness. The knee-jerks were exaggerated. The temperature was subnormal, and the pulse from 48 to 60. The pupils responded to light and accommodation. There was no nystagmus or hemianopsia and no change in the fundus oculi.

The symptoms increased in severity, the temperature rose rapidly, and the patient died May 25th. There had been no convulsions.

Post-mortem showed skull and membranes healthy. Cortex normal in color and consistency. The left optic thalamus was the seat of a growth as large as a hen's egg, which encroached upon the corpus striatum and posterior part of the internal capsule. The tumor has not been examined microscopically, but is probably a fibroma.

The points of interest are the hysterical symptoms which were present at the onset; the fact that the anæsthesia was confined to the face; and the question which arose as to the possibility of operation.

These two papers were discussed together.

Dr. Dana had two cases, one with tumor and another with softening in that region. Somnolence was a prominent symptom. The phenomenon of somnolence is characteristic where the posterior portion of the optic thalamus and the neighborhood of the corpora quadrigemina were involved.

Dr. Seguin observed a patient with probable tumor in this locality, with somnolence which was increased by the use of iodide of potash. He asked if such effect of the iodide had been observed by any of the members present.

Dr. Dana was familiar with a case where the iodide acted as a hypnotic.

Dr. Gray had noticed that iodide had produced somnolence in a case of cerebro-spinal meningitis.

Dr. Leszynsky thought that iodide only acted indirectly as a hypnotic by relieving the pains of syphilis.

Dr. Sinkler remarked that in his case the somnolence diminished after the administration of the iodide.

THE LOCALIZING VALUE OF APHASIA.

Dr. George J. Preston, of Baltimore, read a paper upon this subject, and called attention to the fact that aphasia has hardly commanded its proper place in the domain of cerebral localization. The centres for the speech processes, and the visual and auditory centres, were described. In connection with word-blindness, two cases of hemianopsia were related, one with autopsy, in which there was no word-blindness, as might have been expected. A case of mixed aphasia was related and the brain exhibited. The case showed absolute motor aphasia, together with word-blindness; and yet the lesion was confined to the third frontal convolution, the occipital cortex showing no disease. The general value of speech disturbance, as an aid to localization, especially in disease or injury of the brain, was discussed. A case was reported in which there was a general speech disturbance, with distinct mental symptoms; patient was at times maniacal. Upon the strength of the general disturbance of the speech processes, the skull was trephined over Broca's region, and the under surface of the dura found covered with blood. This case was mentioned to show how valuable speech disturbances may be, although very general in nature and not belonging to any recognized variety of aphasia.

SPINAL NEURASTHENIA.

Dr. Leonard Weber, of New York, presented a contribution upon this subject. He objected to any single plan of treatment, as too much routine, and not likely to be of permanent service to the patient, while a proper combination of the well-known methods based upon careful individualization were apt to be of greater benefit.

In the grave forms of neurasthenia caused by mental and physical overwork, the prognosis so far has not been good, even as to relative recovery. If the reports can be trusted, it would seem that we have in hypnotic suggestion a remedy of extraordinary power in some of these cases.

In conclusion, he related the history of some cases of severe neurasthenia brought about by protracted mercurial inunction, and another caused by prolonged daily use of small doses of Carlsbad Salts. Both recovered at the end of about a year.

THIRD DAY. — THURSDAY.

OBSERVATIONS IN A CASE OF MYXŒDEMA.

Dr. Wm. C. Krauss, of Buffalo, read a paper with this title. He reported a case of myxœdema in a woman fifty-three years old, whose mother was afflicted with symptoms similar to the patient's. The patient had always been in good health up to her forty-sixth year, although she had never perspired and the secretions as saliva, nasal mucus and milk were always scanty. Following upon an accident, her face, body and extremities became swollen, her hair suddenly disappeared from all parts of the body, and she was troubled with severe pains (especially through the temples) and a tired, all-gone feeling, incapacitating her for all kinds of manual labor. She further complained of a feeling of coldness even in midsummer. Her hands were dry, harsh and scaly; her face waxy; her eyes puffy and swollen. Her temperature ranged from 95.4° F. to 97.4° F. Her pulse, soft, regular and uniform, varied from 81 to 88 per minute. The œdema-like swelling did not pit on pressure. Urine normal; no albumen at any time. The only drug that acted beneficially was the perchloride of iron.

The author experimented with thyroid glands of sheep, feeding her for six weeks, but could detect no improvement whatever. Another case seen in consultation was being treated with desiccated thyroids, also without benefit.

SIMULATION IN TRAUMATIC NERVOUS DISEASES.[1]

DR. PHILIP COOMBS KNAPP, of Boston, in reading a paper with this title, said that although many men will simulate disease if it be to their advantage, we rarely find successful simulation of the various traumatic nervous affections. Until recently few cases have been reported by neurologists; most of the old cases were reported by general practitioners whose knowledge of nervous diseases was limited.

In non-traumatic hysteria and neurasthenia we see many symptoms which would lead us to judge that the symptoms did not really exist. Many persons unjustly accuse the victims of these diseases of pretending to be ill, when really the malady is a serious one.

Contraction of the visual field, anæsthesia, tremor, disturbances of the reflexes, circulatory disturbances and Mannkopf's symptom are to be regarded as important objective signs. Few simulators can have intelligence enough to withstand a searching examination by a skilled neurologist.

Furthermore, a man can keep his attention fixed on any subject only for a very brief time; and if he must be prepared to defend his simulation of half-a-dozen different symptoms, he will inevitably be tripped up by unexpected tests applied when his attention is diverted.

Three cases were cited in which the defence claimed that there was simulation, but in every case objective evidence proved the reality of the disease.

Out of fifty cases where claims for damages had been brought forward, only two could be regarded as simulating, and few as exaggerating, and in most of these there was little reason to suppose any deliberate attempt at fraud.

DR. MILLS believed absolute simulation very infrequent. The cumulative exaggeration of symptoms was comparatively frequent, however. A few people can simulate a type of insanity or traumatic neurosis, but cannot easily simulate all the symptoms and signs. He was in favor of the convex-lens test for amblyopia instead of prisms in these cases. He did not consider malingering of common occurrence.

DR. GRAY thought many cases supposed to be simulating are simply offering to the trained eye symptoms indicative of possible simulation. He related a case of traumatic neurasthenia cured by one one-hundred-and-twenty-fifth of a grain of atropine taken for two days.

DR. FIELD considered simulation rare. Gross exaggeration was common in these cases. In almost all there is some exaggeration of the symptoms.

DR. LLOYD regarded the symptoms of traumatic neurasthenia as nothing but the interparoxysmal symptoms of hysteria. Because a man develops hysteria after an accident, there is no reason to believe that he must be a simulator.

DR. SEGUIN said the influence of the attending physician is often pernicious to the patient. He may not actually coach him, but he suggests. Some patients take advantage of a pre-existing morbid affection. The absence of treatment is responsible for a continuance of the symptoms of traumatic nervous affections. We should be allowed to examine these cases unexpectedly, unguardedly and thoroughly, and not when sympathetic physicians or counsel are present. He protested against Dr. Lloyd's remarks about the unity of hysteria and traumatic neurasthenia.

[1] See page 318 of this volume of the Journal.

DR. KNAPP, in conclusion, said that he had seen cases with minor exaggeration, in contrast to Dr. Field's cases of the grossest exaggeration. He agreed with Dr. Seguin regarding the absence of treatment, but he had had a number of cases where treatment had been early and properly instituted. He could not agree with Dr. Lloyd's style of nomemclature.

STAINING WITH NIGROSIN.

DR. SEGUIN exhibited a specimen stained with 1 to 2000 nigrosin, a method he had used years ago, but neglected to publish. One of the advantages was that specimens may be safely left in the solution for twenty-four hours.

THE MICROBIC ORIGIN OF CHOREA WITH A CASE.

DR. C. L. DANA, of New York, read the history of a case of chorea, with autopsy.

The patient, a man of twenty-six, had had chorea since the age of fifteen. The attacks came exactly like those of ordinary chorea of Sydenham. At first there were intermissions, but the disease finally became chronic. The spasmodic movements were general and violent. There was no heart disease or rheumatism. The patient died from exhaustion. Post-mortem showed macroscopically a conspicuous chronic leptomeningitis, involving the vertex of the brain. Microscopically this was found to be mainly a proliferation process, without exudation or much cell-infiltration. In the superficial layer of the cortex there was cellular infiltration and degenerative changes. At this point a diplococcus was found. Full details were given of this by Dr. Brooks, the bacteriologist. The micro-organisms were found only in the deep layer of the pia and the superficial part of the cortex. In addition, there were found peculiar hyaline bodies in the three outer layers of the cortex, and less numerously in the basal ganglia. There were evidences of meningeal irritation, vascular disease (arteritis) and nerve-root irritation in the medulla and upper part of the cord. The lower part of the cord was not examined.

ELECTION OF MEMBERS.

The following named gentleman were elected to active membership: Dr. Brower, of Chicago; Dr. Burr, of Philadelphia; and Dr. Diller, of Pittsburg. Dr. Arnold Pick, of Prague, was elected an associate member.

PAPERS READ BY TITLE.

"The Genesis of Hallucination, Illusion and Delusion," by Dr. H. A. Tomlison, of St. Peter, Minn.; "The Diagnosis of General Paresis," by Dr. L. C. Gray, of New York; "A Report of Two Cases of Friedreich's Disease," by Dr. Frank R. Fry, of St. Louis; "The Metapore or Foramen of Magendie in Man and in the Orang," by Dr. Burt G. Wilder, of Ithaca; "Observations on the Relation of Chorea to Rheumatism," by Dr. C. Eugene Riggs, of St. Paul; "Experiences in the Use of Testiculine and Cerebrine," by Dr. J. J. Putnam, of Boston; "Peripheral Paralysis after Surgical Operations," by Dr. V. P. Gibney, of New York; "Traumatic Brachial Plexus Paralysis in Infants," by Dr. Wm. M. Leszynsky, of New York.

ELECTION OF OFFICERS.

The officers elected for the ensuing year were: President, Dr. B. Sachs, of New York; Vice Presidents, Dr. F. X. Dercum, of Philadelphia, and Dr. P.

C. Knapp, of Boston; Secretary and Treasurer, Dr. G. M. Hammond, of New York; Councillors, Dr. E. C. Seguin, of New York, and Dr. J. H. Lloyd, of Philadelphia.

In the evening a banquet was given by the Association, at which nearly thirty members were present.

Recent Literature.

A Text-Book of Medicine for Students and Practitioners. By DR. ADOLF STRÜMPELL. Second American edition, translated by permission from the second and third, and thoroughly revised from the sixth German edition, by HERMAN F. VICKERY, A.B., M.D., and PHILIP COOMBS KNAPP, A.M., M.D. With editorial notes by FREDERICK C. SHATTUCK, A.M., M.D. With one hundred and nineteen illustrations. New York: D. Appleton & Co. 1893.

The first American edition of this text-book of medicine was published in 1886. Its reception and continued popularity have justified the undertaking of the translators and editor; and its increasing use, as well as the numerous changes in facts and opinions brought about by the last six years, have demanded a second edition. The position occupied by the book in Germany is shown by the fact that it has reached a sixth edition, the fifth having been exhausted in the course of one year.

This translation is used as a text-book or as a work of reference in some twenty-eight medical schools in America. The present edition contains an entirely new chapter on influenza; quite important changes and additions have been made in the chapters on cholera, malaria, diseases of the nose and larynx, syringomelia and diabetes. In the present American edition the editor has omitted some notes, changed others, and added some new ones.

Those who know the previous edition will desire to have this one, and those who want a first-rate medical text-book, and did not have the previous edition, certainly require this. We know of no better book of its kind.

Recent Developments in Massage. By DOUGLAS GRAHAM, M.D. 12mo, pp. v, 128. Second edition, with seventeen illustrations. Detroit: George S. Davis. 1893.

This little volume of the Leisure Library is rather a supplement to the author's larger work, than an independent treatise on massage. The author has collected many new cases, showing various affections in which massage has been tried. The most important chapter is that on the use of massage in sprains, dislocations and fractures, in which considerable evidence is brought forward in behalf of the early use of massage, in place of the absolute immobilization now in vogue.

A Physician's Pocket Chart-Book. By J. A. HOWKINS, M.D. New York: Bailey & Fairchild. 1893.

This little book of charts, of a size to be carried in the pocket, will undoubtedly prove of considerable use in the keeping of clinical notes.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, NOVEMBER 2, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

SEROTHERAPY.

EGASSE discusses Serotherapy in a memoir not yet completed.[1] His article is of value rather as being a summary of progress already achieved than as containing original matter. Old cultures of human tuberculosis injected in dogs, render them immune against the strongest new cultures; the blood-serum of these dogs confers immunity against tuberculosis if injected in other dogs; in fact, it is not only preventive but curative, modifying or arresting the disease in animals already tuberculous. The animals under experimentation were dogs and guinea-pigs; the principal experimenters have been Bernheim, Richet and Hericourt. The serum of immune dogs has produced marked amelioration in all stages of tuberculous disease, and in no case was there consecutive fever, as after injections of tuberculine. Bernheim has applied this treatment to the human subject in one hundred and five cases, injecting ten cubic centimetres of the arterial serum of an animal rendered refractory; he reports favorable results from this treatment.

Richet and Hericourt have found that the intraperitoneal transfusion of the arterial blood of a dog confers on rabbits and guinea-pigs immunity, not only against bacteria, but against charbon and other germ diseases; they also demonstrated the possibility of retarding and even arresting tuberculosis by the intraperitoneal injection of the blood or serum of dogs that had been "vaccinated" and thereby rendered immune. Tuberculosis in birds also vaccinates the dog against human tuberculosis. Their article emphasizes "the salutary action exercised by the blood of a vaccinated animal on the course of tuberculosis." They also cite the case of a tuberculous patient who had been treated eighteen months by serum injections, and who was on the fair road to recovery. Stimulated by these successes, De Dominicis has been treating chlorotic and tuberculous patients by intravenous transfusions of the blood of a healthy dog. The result was excellent in the case of three chlorotic girls, who experienced rapid

[1] Bull. gén. de thérapeutique, September 15 and October 1, 1893.

amelioration. Four tuberculous patients were treated in a similar way; of these, two soon died, and the other two became speedily better, with return of appetite and strength, and cessation of fever.

Egasse affirms that the serum of the dog possesses very remarkable tonic and stimulant properties, but the salutary effects which it produces in tuberculosis "do not testify to any specific, ante-tuberculous quality." "It purifies the organism, ameliorates the general state, and thus puts the patient in better condition to resist the infection."

Tommasoli has tried local injections of the blood serum of dogs in the treatment of lupus. He has obtained some amelioration, but no cures.

With regard to tetanus, there is no need of repeating what has been before published on several occasions in this JOURNAL. The experiments of Behring and Kitasato, of Tozzoni and Cattani and others, are now sufficiently known. There is no doubt that in animals immunity has been obtained against the tetanus-poison by serum injections, but no such encouraging results have yet been experienced in man. Recently in France, Renon, Chief of the service of Dieulafoy, subjected two tetanus-patients to "repeated and large injections" of immunized serum. Both patients died. Grancher, Polaillon, Anger, Letalle and others have reported similar failures. Barth and Mayet, on the contrary, report a case of grave tetanus in a young man of eighteen years cured by the injections of the serum of an immunized horse; chloral and bromide were, however, given conjointly in large doses. The same may be said of Schwartz's patient.

More recent still is the case reported by Riccardo Gattaï, of a boy fifteen years old, in whom tetanus declared itself after a wound in the hand by the point of a compass. The ninth day, 10 cubic centimetres of the blood of an immunized hare were injected, "followed in the evening by an injection of 50 centigrammes of the antitoxine of the dog." The injection was several times repeated and the recovery was speedy and complete.

Roux and Vaillard have treated seven patients: two recoveries and five deaths. They find that the reaction under antitoxine is the same in both animals and men. The treatment has failed in grave cases of tetanus. It might have been successful if begun earlier. The prognosis depends on the extent and intensity of the lesions at the moment when therapeutic interference is attempted. These writers persist in declaring that the employment of antitoxic serum is at present the only rational treatment of tetanus, and the injections are the more successful, the earlier they are practised.

CONGENITAL DEAFNESS.

IN the care and instruction of deaf-mutes the question whether the deafness is acquired or congenital is often of great importance; and J. K. Love, in an article in the Glasgow *Medical Journal*, makes a study of the relative statistics of congenital deafness.

Even admitting that the pathology of congenital and acquired deafness differs, it still matters little whether the disease took place before birth or in the early months of life, for the latter cases soon are as dumb as the former. If surdism were always congenital the study of its pathology, though interesting, would hardly be of practical value, for congenital deafness is a finished state before it is detected. Of more importance is the amount of deafness.

The general impression that nearly all deaf-mutes are quite deaf is a decided error. On the contrary, "almost no deaf-mute is quite deaf."

The statistics as to the relative extent of acquired and congenital deafness vary much; from one series in which out of 489 deaf children 423 were reported born so, to another in which but 117 out of 279 were congenitally deaf. All the more recent statistics, German and others, show that on careful inquiry the acquired cases are found to be the more numerous.

In obtaining this information, the fact to be sure of is not whether the child ever spoke, but whether it ever heard or not. "The difficulty of ascertaining the presence of hearing in early infancy has been exaggerated; for long before speech is developed mothers have proof of the presence of hearing, and in nearly every case where the parent is closely questioned, the truth can be ascertained." The careful examination of all cases during the last two years leads to the conclusion that a majority of deaf-mutes are born hearing — the ratio being about 65.3 to 34.7.

Many interesting figures are given concerning the deaf-mute couples in Glasgow, of whom there are seventy-five; six of them have deaf-and-dumb children. Direct heredity of deafness was marked in many of the cases. The statistics of cases studied, both by the writer and others, do not prove that consanguineous marriages cause deafness in the offspring; but there is sufficient reason to discourage the intermarriage of the congenitally deaf. There is no proof that other circumstances, such as want and dipsomania, have any specific connection with the cause of deaf-mutism.

THE GOOD FORTUNE OF THE MASSACHUSETTS MEDICAL BENEVOLENT SOCIETY.

AT the Annual Meeting of this Society, on October 26th, the Treasurer announced the receipt of the first payments from a testamentary gift of the late Elisha R. Ashton of Boston. By his will, Mr. Ashton directed his executors to place in the hands of trustees a very large sum, of which the income should be paid, *in perpetuo*, to such charitable societies as he had selected as suitable objects of his bounty. The amount received by the Society as yearly income from this source is expected to be about one thousand dollars; this year it was $999.75. Twenty-five other charitable societies receive, each, the same amount.

This munificent bequest, which does infinite credit to the good judgment of the testator and to the prudent care of his chosen agents, added to the Fund already

accumulated from the subscriptions of its members and from other generous gifts by benefactors who have approved its work — places the Medical Benevolent Society in a position to enlarge the number of its beneficiaries as may become necessary.

One special feature of the Constitution of the Society, which has been highly commended, is: that its benefits are not limited to its own membership as in the great proportion of relief organizations, but are freely extended to worthy Fellows of the Massachusetts Medical Society and their families who may fall into distress, through no fault of their own. Such worthy cases are frequently brought to the notice of its Council, and are sought out and relieved, after careful inquiry, by temporary relief, or by permanent annuity, according to the exigencies of each case. At the present time there are fifteen annuitants who quarterly receive aid from this Society.

MEDICAL NOTES.

Yellow Fever. — The yellow fever epidemic at Brunswick, Ga., continues unabated, the new cases numbering from thirty to forty each day. Up to the present time there have been 750 cases and over 40 deaths. The population of Brunswick is only 4,000. At Jesup no new cases have been reported, and there are now but a few patients under treatment.

An International Chemical Congress. — The Belgian Chemical Society is organizing an International Chemical Congress, to be held at Brussels, in August, 1894. The chemistry of food-stuffs is to form the subject of special discussion.

Paris Medical Faculty. — Considerable discussion is at present going on among medical circles in Paris, both at the Academy and in the medical journals, as to the propriety of private practice by the professors of the Medical Faculty. There seems to be a growing feeling that they should not, but that their whole time should be devoted to the scientific instruction of men who are to be made accomplished physicians. The interruptions of private practice it is claimed prevent the best results of study or of instruction. On the other hand, the importance of correcting theoretic and laboratory conclusions by careful observation and experience in the care of disease is urged by the friends of the practising professor.

BOSTON AND NEW ENGLAND.

Harvard Medical School. — The legacy of $6,000 given by Claudius Marcellus Jones has been devoted to the establishment in the medical school of a scholarship bearing his name, with an income at present of $250 a year.

Diphtheria. — The numerous cases of diphtheria in the Dorchester wards, of which mention was made last week, have continued to increase. A focus seems to exist around the Mather Grammar School, some fourteen cases having occurred within 800 rods of the schoolhouse in children attending the school. The plumbing of the building is said to have been for some time in need of repairing, but so far nothing has been done to improve the condition.

New Building for the Insane at Middletown, Conn. — The trustees of the Hospital for the Insane at Middleton, Conn., have decided upon the plans for the new building for which the legislature granted $100,000 at the last session. It will be used wholly for the mildly chronic insane, and will accommodate 250 patients. It is to be built of brick and brownstone walls, with "slow-burning construction" interior. Active work will be begun in the early spring.

NEW YORK.

New York County Medical Society. — At the eighty-eighth annual meeting of the Medical Society of the County of New York, held October 23d, the following officers were elected for the ensuing year: President, Dr. Seneca D. Powell; First Vice-President, Dr. Henry D. Chapin; Second Vice-President, Dr. Egbert H. Grandin; Secretary, Dr. Charles H. Avery; Assistant Secretary, Dr. Wm. E. Bullard; Treasurer, Dr. John S. Warren; Censors, Drs. Alexander S. Hunter, Charles H. Knight, F. M. Warner, Frederick Peterson and Auguste Caille.

Examination for Appointments to the State Insane Asylum. — On November 16th there will be a civil service examination at Albany, for the positions of junior assistant physicians and apothecaries in the State hospitals for the insane. Applicants for the former must be residents of the State of New York, graduates of a legally incorporated medical college, and have had at least one year's actual experience on the staff of a public general hospital. Salary, $800 to $1,500 a year, with board.

A Long Swim.—Dr. Judson Daland, the Mediterranean deputy of Health Officer Jenkins, recently performed a remarkable athletic feat in swimming the classic Straits of Messina, from Scylla to Charybdis. He entered the sea at Faro, and after encountering much difficulty with the currents, passed the rock of Scylla and landed on the coast at Riggio, in Italy. The distance was about six and a half miles, and was accomplished in two hours and twenty minutes, and without the use of stimulants. It is not known that the feat was ever before accomplished.

Electro-Execution.—The execution of the murderer Foy, which was effected at the Dannemara prison, on October 23d, is said to have been the most successful since the infliction of the death penalty by means of electricity has been in use. At first a current of 1,640 volts was sent through the body for four seconds. The current was then gradually reduced to 150 volts, and at the end of forty-five seconds was increased again to 1,640 volts for two seconds, and then shut off. In order that there might be no delay from the possible giving out of the dynamo, as was the case at the last execution at Auburn, the electrical apparatus had been previously connected with the electric-light plant of the town.

Miscellany.

THE WATER-SUPPLY OF LONDON.

THE Royal Commission appointed last year to inquire into the water-supply of London has lately made its report.

The city is at present supplied by eight metropolitan water companies and sixteen others within the limits of Greater London, that is, within a circle of a radius of fifteen miles from Charing Cross, an area of 701 square miles. These extra metropolitan companies obtain their supply from wells sunk into the chalk stratum, with the exception of two companies which draw daily a total of 4,000,000 gallons from the Thames.

It is estimated that in 1931 the population of London will be at least 8,526,054, and the daily supply required will amount to 253,529,686 gallons. The capacity of the water companies to provide this quantity is returned as follows: — From the Thames, 300 million gallons daily; from the Lea, 52½; from wells and chalk springs, 87 million gallons; making a total of 439½ million gallons a day. To ensure these results from the Thames and Lea it will be necessary to make vast storage reservoirs, and impound all the storm and flood water, to be drawn upon when required.

It is feared that this storage water will be of such quality as to be of considerable danger to consumers for there is at present much filth discharged into the rivers; a large proportion of which is preventable and distinctly illegal, the Rivers' Pollution Prevention Act being to a great extent a dead letter. The Commission urges that "all possible vigilance be exercised to prevent unnecessary contamination of the Thames and Lea and their respective tributaries, to ensure the thorough treatment of all sewage, before it is allowed to pass into the rivers, by the most efficacious methods that science and experience may dictate, and to enforce the adequate storage and filtration of such water as is abstracted at the intakes."

LOOKOUT MOUNTAIN AS A HEALTH RESORT.

LOOKOUT MOUNTAIN is recommended most enthusiastically as a health resort by Dr. Deitrich,[1] who has found there a cure for his own case of phthisis. Its reputation for climate has, until the last few years been only local, but is deserving of further notice. The plateau summit, which is seventeen hundred feet above the Tennessee River, and two thousand and eighty above tide-water, is an undulating surface beginning at the northern end and gradually widening out to the south until it is over a mile in width. It extends into Georgia, but only the Tennessee portion is easy of access. "The soil is light and sandy, absorbing moisture with great rapidity. Since the war there has been no cultivation, and the plain has now grown up with pine and oak forest.

"The meteorological records, which have been taken only within the last twelve months, show a mean annual temperature of 54° F., with an annual range of 17° F. During the winter there is seldom freezing weather; and only once in five years has the thermometer been as low as 2° F. The maximum last summer was 88° F. The average number of clear, fair days was twenty-four each month. There is abundant sunshine and a breezy atmosphere."

[1] Medical Record, October 14th.

It is stated that no case of consumption has been known to occur among the native mountaineers. The water-supply is abundant and pure, there being both freestone and chalybeate springs. Aside from the wonderful views to be had from the summit, there is the advantage of easy access from the city of Chattanooga. The accommodations for invalids, which are so important and so lacking in many of the Southern health-resorts, are said to be most excellent.

VENOUS MURMUR IN CIRRHOSIS OF THE LIVER.

MARTINI reports[1] three cases of atrophic cirrhosis of the liver in which there was a constant blowing murmur to be heard in the sixth intercostal space in the right axillary line. The murmur was always increased during inspiration, but in one case diminished after an attack of hæmatemesis. The cause seemed to be in the altered position of the ascending vena cava, which was crowded against its opening in the diaphragm by the contracted liver and the ascites, causing a venous eddy at the point of obstruction. In one case which came to autopsy there was a distention of the vein below the opening.

ANTHROPOMETRICAL DESCRIPTIONS.

ONE of the interesting studies which has arisen in connection with criminology is the means by which criminals may be identified without mistake. The adoption of the photograph was a great gain in every way, but the large collections of rogues' likenesses have been growing to such proportions in our great cities that it is now impossible to search through them all. In Paris, alone, there were 100,000 persons photographed in ten years. The changes of feature possible, and the distortions even of photography were also objectionable.

In a recent number of the *Humanitarian*, Dr. Bertillon describes the method which under his name is now used in France. It exemplifies most remarkably the time saved by system and order in the arrangement of statistics. The description of each person is made by recording the length of various bony parts, always the same, and taken in a regular order. Under each measurement there are made three divisions, long, medium and short. And as each new factor is introduced under the proper sub-class of the division before it, the case under consideration is rapidly localized.

The measurement of height is not used as the basis of the first great division as might be expected, for it is found impossible to measure closer than 1.18 inches, while by commencing with the less changeable measurements a greater accuracy of classification is obtained.

The length of the head is the first taken, by means of compasses so accurately adjusted as to show a variation of a millimetre. The three classes are short, 7.2 inches; medium, 7.25 to 7.4 inches inclusive; and long, those over 7.4 inches. Next is measured the breadth of the head, from one parietal bone to the other. This again gives three classes, narrow up to 6 inches; medium, 6 to 6.22 inches; broad, over 6.22

[1] Gazz. degli Ospitali, 2, 21, 1893.

inches. Following these there come in order, each with three divisions, the length of the middle finger of the left hand, one of the very best indications, the maximum length of the left foot, not of great accuracy, length of extended arms, height, color of the eyes, for which a special table of seven divisions is used. These figures alone divide the number of cards to be examined by a very large divisor, and the addition of a few more measurements, as the measurements of the ear, sternum, or other fingers, would reduce the number of cards, each criminal having one, still further. Finally, as a last and absolutely determining check is the record of particular body signs, as scars, moles, etc. Three or four of these would suffice to enable a man to be identified out of a million. These special marks are much less deceptive and costly than photographs, and are a better guarantee for identification than measurements; and would entirely replace the latter, if only it were possible to make use of them as a basis for classification.

The number of divisions, all equally probable, which are furnished by the twelve indications, combined and divided by the three categories (small, medium, large) exceeds *One Million.*

Correspondence.

LETTER FROM CHICAGO.

World's Fair Congress of Public Health, and Meeting of the American Public Health Association, October 10–14, 1893.

(Concluded from No. 17, page 430.)

THURSDAY. — AFTERNOON SESSION.

Dr. A. R. Reynolds, Commissioner of Health of Chicago, and Mr. Allen Hazen, Chemist of the Water Department at the Exposition, presented the subject of "The Water-Supply of Chicago." Dr. Reynolds stated that the new water intakes or cribs four miles distant from the shore had been in operation for several months, and that since the water had been drawn from that distance the death-rate from typhoid fever in the city had been greatly reduced. For the year ending September 30, 1892, the number of deaths from typhoid fever in Chicago was 1,790 in a total of 26,646, or a percentage of 6.72. For the year ending September 30, 1893, deaths from typhoid fever were 712 in a total of 26,977, or a percentage of 2.64. It is most unfortunate for this comparison that the old supplies were partly in use during the first few months of the latter year, before the four-mile tunnel was opened. We may believe that if this had not been the case, the comparison would have been still more favorable to the improved supply. It is a well-known fact that people using a water-supply to which they are not accustomed are often more susceptible to any infection which it may contain than are those using such water regularly. A striking illustration was furnished by Philadelphia in the Centennial year, when the typhoid death-rate was nearly doubled; while in Chicago the present year, for the first five months of the Fair period the rate has been less than half as high as for the corresponding months of the preceding year. For the entire year under consideration, in spite of the vast number of visitors continually present, there has been a reduction of over 60 per cent. in the typhoid fever death-rate. This reduction is most striking, and it can hardly be doubted that the improvements in the water-supply have been the chief, if not the only, cause.

The mortality percentages from typhoid fever in a number of cities may be compared as follows: Chicago, 1892, 6.72; in 1893, 2.64; Philadelphia, 1892, 2.22; Boston, 1.22; Paris, 1.01; New York, 0.90; Brooklyn, 0.80; London, 0.49; Berlin, 0.42. The cities having the lowest typhoid fever death-rate, London and Berlin, use only filtered water. London draws nearly all its water from the two grossly polluted rivers, the Thames and the Lea, and after filtering it, supplies it to a population that is almost free from typhoid fever. Another improvement which will eventually still further protect the purity of Chicago's water-supply may be mentioned — the drainage canal. In the meantime it may be a question worth considering by the engineers whether filtration would not be as cheap and effective a means of improving the water-supply as the farther extension of the tunnel.

Mr. Geo. W. Fuller, Biologist at the Lawrence Experiment Station, presented a paper on the "Removal of Pathogenic Bacteria from Drinking Water by Sand Filtration." He described the experiments which had been made at the Lawrence Experiment Station, the results being summarized in a series of tables, in which it was shown by the results of 11,000 examinations that it is entirely practicable to construct filters for city water-supplies which will remove more than 99 per cent. of the bacteria. He stated that the large filter just finished for the filtration of the water for the city of Lawrence was already removing from 96 to 98 per cent. of the bacteria after a few days of use.

The remainder of the afternoon was devoted to the subject of "Quarantine."

Papers were read by Drs. Liceaga and Orvananos upon "Quarantine in Mexico."

Dr. Montizambert, of Quebec, described the system in practice at Grosse Isle, the Quarantine Station of the St. Lawrence River, where more than 100,000 pieces of baggage of immigrants had been disinfected during the past season.

Dr. Swearingen, of Texas, described the quarantine system of the Texas sea-coast, and severely criticised the laxity of the Mexican laws in allowing people infected with yellow fever and small-pox to cross the Rio Grande.

A vigorous discussion followed in which Drs. Baker, Hewitt, La Chapelle and others participated, the points at issue related to the disinfectants in use, the articles to be disinfected and the methods of treating them, and the diseases to which quarantine should be applied.

EVENING SESSION.

Mrs. Dr. Sarah H. Stevenson, of Chicago, spoke upon "Municipal Sanitation," her remarks being chiefly devoted to the importance of a proper disposal of the dust of dwellings and of streets.

Dr. Abbott, of Massachusetts, read a paper entitled "National Registration a Necessity." [1]

FRIDAY. — MORNING SESSION.

Dr. Miguel Marquez, of Chihuahua, Mexico, presented a paper entitled "Animal Vaccine: Why it should be Preferred to Human Vaccine," in which it appeared that epidemics of small-pox had been more frequent during the past half-century in Mexico than in the United States. The conclusions of his paper were as follows:

That to continue the use of human vaccine, is attended by grave inconveniences that are advantageously avoided by the use of animal vaccine; that the latter is adapted for distribution; that its beneficent influence may be felt even in the smallest villages, hamlets and ranches, by distributing great quantities of vaccine points; that an intelligent person can inoculate without the least danger; that we should not trust to the judgment of any individual to determine whether a child is or is not well, or if the lymph should be taken from it (with the possibility of transmitting syphilitic virus) and that, of course, the adoption of animal vaccine will suppress forever the custom of vaccinating from arm to arm.

Summary: The animal vaccine should be preferred to human vaccine, because:

(1) It does not transmit syphilis and preserves more efficiently against the small-pox.

(2) It can produce at a given moment large quantities of lymph, fresh, pure and genuine, at a very small cost.

(3) Its administration can be trusted to any intelligent person without the least danger.

[1] To be published in the Journal.

Dr. Jerome Cochran, of Alabama, presented the results of an experiment in disinfection for the preventive treatment of pneumonia. He stated his belief that pneumonia was infectious, but was not aware of any previous attempt to limit its spread by means of disinfection. A brief description of outbreaks in prisons and among miners in Alabama was given. The epidemic occurred in May, 1893. The total number of cases was 93. Disinfection of the prison hospital was begun on May 14th, and completed in six days. There were only seven new cases after the disinfection; and he thought that these might have been contracted before the completion of the disinfection. This was accomplished by drenching the walls and floors with sublimate solution. Mattresses and clothing were introduced into a steam-chest for six hours. Convicts were required to take a bath. In one week the epidemic had ceased.

Dr. C. N. Hewitt, Secretary of the Board of Health of Minnesota, read a brief paper entitled "The Best Way to Restore the Practice of Vaccination to its Proper Place as a Preventive of Small-Pox," in which he presented the results of his experience in dealing with a hundred outbreaks of small-pox in Minnesota. He successfully conducts a State vaccinal institute, and distributes lymph from this establishment. He believed that the work of propagating vaccine lymph should be freed from the harmful influence of commercial and trade methods to which it is subjected in this country.

Dr. Lee, of Pennsylvania, presented a resolution endorsing the practice of vaccination in the strongest terms; which was adopted by the Congress by a unanimous vote.

As one of the committee on yellow fever appointed at the last meeting of the American Public Health Association at Mexico, Dr. Liceaga, President of the Supreme Board of Health of Mexico, presented a "Contribution to the Study of Yellow Fever." The following is a *résumé* of the chief points in the paper of Dr. Liceaga:

(1) The places where yellow fever reigns, and which can be considered as *centres* of infection, are in the Gulf of Mexico, Vera Cruz, Frontera, Campeche and the districts on the northern coast of the Yucatan Peninsula, the last named separated by the Yucatan Canal from the Island of Cuba, where the fever also reigns.

On the great Pacific Coast, which belongs to the Mexican Republic, there is not a single yellow fever centre.

(2) All the Mexican territory on the Gulf of Mexico and on the Pacific Coast is well adapted for the disease when imported.

(3) Yellow fever has become epidemic in the following places on the gulf coast: Matamoros, Altamira, Tampico, Tuxpam, Papantla, Misantla, Nautla, Alvarado, Coatzacoalcos, Minatitlan, Lagang and San Juan Bautista de Tabasco.

(4) The epidemic has extended into the interior, but never into places situated more than 1,008 metres over sea level.

(5) On the Pacific there is not a yellow fever centre, but it has been imported into the following places: On the Peninsula of Lower California, La Paz and Todos Santos; on the Continent, Guaymas, Altata, San Blas, Manzanillo, Santiago, Acaponeta, Acapulco, Puerto Angel, Salina Cruz, Tonala Soconuzco, Tapachula and San Benito, and in the interior in Hermosillo and Culiacan.

(6) Immunity against yellow fever is obtained after having had the disease in any of its forms.

It is possible that this immunity may be lost at times, but it is seldom the case, as it happens with typhus, small-pox and scarlet fever, which may be had by a person who has had them.

(7) The vaccine of Jenner against small-pox and others which science has discovered, authorize us to look for the one that will prevent the yellow fever.

The inoculation against this fever which Dr. Carmona y Valle has practised with success should be tried on a large scale, in an uniform manner, in order to be able to find out if they are efficacious or not. If this experience confirm it then they should be made compulsory in the countries where the fever reigns.

If they should not prove worthy, then the inoculation of blood serum, as proposed by Dr. Sternberg, from persons enjoying immunity, should be tried on a large scale and in a uniform manner.

(8) The purification of the drinking-waters used by persons who have to expose themselves to contract the disease, should be recommended.

The purification of the water used on board the ships leaving or calling at infected ports should be proposed.

(9) The sanitation of the places which are yellow fever centres should be done at once.

(10) To prevent, by means of Sanitary Police measures, the importation of fever into places where it can be developed.

Dr. Mendizabal, of Mexico, read a paper upon "La Grippe in Mexico."

Dr. Roque Macouzer, of Mexico, presented the subject of "Diphtheria in Mexico." He stated that the disease was imported into that country by the French Army in 1863, that it was now decreasing in severity, and he believed it would finally disappear. He regarded notification and isolation as important measures in restraining its spread.

Dr. Macouzer presented the following resolutions, which was referred to the Executive Committee.

(1) That educational institutions he recommended to devote more time to the study of hygiene.

(2) That governments should appoint to sanitary positions only those persons who are experts in sanitary science.

Dr. Marin, of Pueblo, read a paper on "Scarlet Fever in the City of Mexico."

Dr. Hewitt reported, in behalf of the Executive Committe, that Mr. Henry Lomb, of Rochester, New York, already well known as a generous benefactor of the Public Health Association, had offered a new prize of $500 for a treatise on "Public Hygiene," for use in the public schools, with a further prize of the same amount for a treatise or essay on some special topic which would be announced in future.

Dr. W. Oldright, of Toronto, read a paper on "Unrest, and its Effect upon the Nervous System." He urged the importance of recreation, and regular relaxation from work, especially for brain-workers. He advised occasional complete abandonment of work and change of employment, as a means of rest. He especially plead for a better observance of Sunday as a day of rest for workingmen.

A prominent paper in the afternoon session was that of Dr. Benj. Lee, Secretary of the State Board of Health of Pennsylvania, entitled, "How shall our Lepers be Cared for?" The following abstract is given:

The State Board of Health of Pennsylvania and the Board of Health of the City of Philadelphia have had some unpleasant experiences with lepers, which have led both of these bodies to appeal to the general government to establish a colony or colonies, where these unfortunates might be provided with the comforts of home, medical care and nursing, and, at the same time might cease to be a horrid menace to the health of those with whom they were thrown into close contact. In order to arrive at a somewhat definite opinion as to first, the need for the adoption of such a measure, and secondly, the general drift of opinion on the part of those who had given the subject thoughtful attention, in December, 1891, I addressed circular letters of inquiry to the secretaries of all State and Provincial boards of health in the United States and Canada, and to prominent dermatologists.

Replies to these inquiries have been received in twenty-three instances. They indicate, briefly, that cases of the diseases have been recognized and made the subject of official report in seventeen States and Provinces. In ten States or Provinces cases exist at the present time under the observation of the authorities, namely, New Brunswick twenty-two, British Columbia seven, New York six, Pennsylvania four, Illinois two, Iowa one, Minnesota seven, Wisconsin four, Louisiana forty, California twenty-four; making in all one hundred and seventeen cases.

At the well-known Lazaretto at Tracadie in the Province of New Brunswick, provision is made for the comfort, care and treatment of these unhappy beings in a manner in harmony with the dictates of humanity and the requirements of modern science, while, at the same time, they cease to jeopardize the health and happiness of others. The United States has only gone so far as to make the affection quarantable at the seacoast, and to order those found suffering from it on arriving vessels, to be at once returned to the ports from which they came. In the different States of the Union, the widest diversity prevails, both in theory and practice. The only place in which segregation is practised, and at the same time humane provision is made for the shelter, maintenance, medical attendance and nursing care of lepers, is the City of Philadelphia. The manner in which the county authorities, who have the care of the other cases in Pennsylvania, discharge that duty is by no means in keeping with the dictates of humanity or the laws of sanitation.

While their numbers are few, no little rural community (very few States even) feels justified in going to the expense of establishing a lazar-house or colony. Is it wise to wait until State after State finds itself compelled by their increasing members to take this step? Or is not rather the duty of the central government to gather them all into one properly supervised community where they can have the companionship of their fellows, the comforts of a thoroughly furnished home, and the advantages of the best medical and surgical skill?

Such is the distinctly expressed opinion of nineteen of the twenty-one eminent dermatologists who favored me with replies to my circular of inquiry.

In conclusion, I desire to say that in determining the importance of this question and the necessity for governmental interference, the numerical method is entirely misleading. One case of leprosy outweighs a hundred of any other disease. If there were but ten lepers in the land instead of more than ten times ten, it would be equally the duty of Congress to initiate measures to prevent, if possible, a single addition to the horribly afflicted company.

In the afternoon many of the members went to the Exposition for the purpose of visiting the exhibits of the State Boards of Health in the Department of Hygiene and Sanitation. The exhibit of the Massachusetts Board of Health, to which reference has already been made in the JOURNAL, received much commendation.

Visits were also made to the sewage-disposal works and the garbage crematory. The former is conducted very nearly upon the plan adopted in several German cities (Essen and Dortmund), and known as the Rockner-Rothe process. The sewage of all the Exposition buildings is received into a building at the further extremity of the grounds, where it is collected in four large iron tanks open at the top. As it enters at the top, it is treated with chemicals which precipitate the sewage, the tanks acting as settling reservoirs for the sludge which gradually falls to the cone-shaped bottom where it is pumped out and conveyed to a press and deprived of much of its water. The compressed sludge is taken to the crematory and burned, together with the garbage and refuse which is collected each day from the restaurants and grounds.

Near the Department of Hygiene is the Rumford Kitchen, established by Mrs. E. H. Richards, of the Institute of Technology, where practical illustrations of food preparation and food economy have been given daily. The members were hospitably entertained at the kitchen.

The following officers of the Public Health Association were elected for the ensuing year: President, Dr. E. P. La Chapelle, of Montreal; First Vice-President, Dr. M. Carmona y Valle, of Mexico; Second Vice-President, Dr. J. N. McCormack, of Kentucky; Secretary, Dr. I. A. Watson, of New Hampshire; Treasurer, Dr. H. D. Holton, of Vermont.

It was decided to hold the next meeting at Montreal in October, 1894.

DIFFERENTIAL DIAGNOSIS OF DIPHTHERIA.

BOSTON, October 28, 1893.

MR. EDITOR: The accompanying circular letter has been sent out to a number of gentlemen, but, as it appears, has not reached some of those who would be glad to co-operate in this work. If there are any who are willing to furnish material, we shall be very glad to have them consider this letter as especially directed to them.

Very truly yours,
HAROLD C. ERNST, M.D.

HARVARD UNIVERSITY MEDICAL SCHOOL.
BACTERIOLOGICAL LABORATORY,
Boylston and Exeter Sts.

BOSTON, October, 1893.

MY DEAR DOCTOR: It is desired to secure information as to how many cases of mild sore throat are or are not diphtheritic. This can only be done by bacteriological examination of cases in private practice, and your co-operation in securing evidence upon the point would be very valuable. Nutrient materials and directions for making the cultures will be furnished at this laboratory every afternoon except Sundays, between three and four o'clock, and at other times by special appointment. The cultures will be carried on and the examination concluded without further trouble to you, and a report will be sent you as soon as the work is finished.

If you are willing to help in the investigation, we shall be very glad to receive a notice to that effect, and further instructions as to methods will be given you here.

Very truly yours,
HAROLD C. ERNST, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 21, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	702	255	17.50	11.20	4.62	2.52	5.86
Chicago	1,438,000	—	—	—	—	—	—	—
Philadelphia	1,115,562	378	133	17.20	10.26	4.05	2.65	8.91
Brooklyn	978,394	320	134	19.53	12.40	8.06	1.24	7.13
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	240	87	16.38	12.18	3.36	2.52	8.82
Baltimore	500,000	—	—	—	—	—	—	—
Washington	208,451	106	38	15.04	14.10	4.70	3.76	5.64
Cincinnati	305,000	112	43	13.35	13.35	4.45	—	8.90
Cleveland	290,000	85	41	20.06	7.08	7.08	5.90	3.54
Pittsburg	263,709	93	40	25.68	7.49	8.56	4.28	9.63
Milwaukee	250,000	70	38	24.31	10.01	11.87	4.29	4.29
Nashville	87,754	28	11	14.28	14.28	—	3.57	—
Charleston	65,165	41	18	14.64	4.88	7.32	4.88	—
Portland	40,000	14	6	21.42	21.42	14.28	7.14	—
Worcester	96,217	27	6	18.50	3.70	11.11	7.40	—
Fall River	87,411	30	7	23.33	13.33	20.00	—	—
Lowell	87,191	30	12	20.00	13.33	10.00	3.33	—
Cambridge	77,100	13	5	30.76	7.69	15.38	—	7.69
Lynn	62,656	9	2	33.33	—	—	11.11	—
Springfield	48,684	15	4	20.00	6.66	—	13.33	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	26	13	15.40	3.85	11.55	3.85	—
Holyoke	41,278	10	1	20.00	20.00	10.00	10.00	—
Salem	32,233	5	0	20.00	20.00	20.00	—	—
Brockton	32,140	5	3	20.00	—	—	—	20.00
Haverhill	31,396	8	2	—	—	—	—	—
Chelsea	30,264	16	7	25.00	—	6.25	6.25	—
Malden	29,394	5	1	—	—	—	—	—
Newton	27,556	—	—	—	—	—	—	—
Fitchburg	27,146	3	0	—	66.66	—	—	—
Taunton	26,972	7	2	14.28	—	14.28	—	—
Gloucester	26,688	6	3	—	16.66	—	—	—
Waltham	22,058	6	0	—	50.00	—	—	—
Quincy	19,642	8	2	12.50	12.50	—	12.50	—
Pittsfield	18,802	2	1	—	—	—	—	—
Everett	16,585	3	0	—	33.33	—	—	—
Northampton	16,331	5	1	40.00	—	20.00	20.00	—
Newburyport	14,073	7	3	—	—	—	—	—
Amesbury	10,920	1	0	—	—	—	—	—

Deaths reported 2,460: under five years of age 925; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fever) 444, consumption 273, acute lung diseases 230, diphtheria and croup 161, diarrhœal diseases 142, typhoid fever 70, scarlet fever 20,

cerebro-spinal meningitis 18, whooping-cough 12, malarial fever 10, small-pox 5, measles 4, erysipelas 2.

From scarlet fever New York 6, Pittsburg 3, Philadelphia and Boston 2 each, Brooklyn, Cleveland, Lowell, Lynn and Springfield 1 each. From cerebro-spinal meningitis New York 5, Brooklyn 3, Cleveland, Somerville and Chelsea 2 each, Washington, Lowell, Cambridge and Lynn 1 each. From whooping-cough Philadelphia 5, New York 4, Boston 2, Brooklyn 1. From malarial fever Brooklyn and Nashville 3 each, New York and Charleston 2 each. From small-pox New York 3, Brooklyn 2. From measles New York 3, Fall River 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,527,846, for the week ending October 14th, the death-rate was 18.2. Deaths reported 3,599: diarrhœa 164, diphtheria 111, fever 98, scarlet fever 73, whooping-cough 54, measles 35, small-pox (Bradford 3, London and Birmingham 2 each, Liverpool and Burnley 1 each) 9.

The death-rates ranged from 9.1 in Huddersfield to 25.5 in Preston; Birmingham 19.6, Bradford 14.8, Croydon 12.9, Gateshead 19.5, Leeds 19.6, Leicester 18.1, Liverpool 22.7, London 17.9, Manchester 21.7, Newcastle-on-Tyne 18.3, Nottingham 18.4, Portsmouth 15.6, Sheffield 18.3, Swansea 17.8, West Ham 18.1.

METEOROLOGICAL RECORD,

For the week ending October 21, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.		Relative humidity.			Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Maximum.	Minimum.	Daily mean.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..15	29.84	62	52	57	50	52	51	S.W.	W.	28	15	C.	F.	
M..16	30.26	51	41	46	64	64	64	N.W.	N.W.	10	10	C.	C.	
T..17	30.38	64	36	50	72	53	62	W.	S.W.	4	8	C.	C.	
W.18	30.50	54	47	50	64	66	65	N.W.	E.	6	12	C.	C.	
T..19	30.58	52	39	46	74	63	68	N.	S.E.	8	10	C.	O.	
F..20	30.40	62	46	54	73	81	77	S.W.	S.	8	10	O.	C.	
S..21	30.22	73	51	62	87	73	80	S.W.	S.W.	7	9	O.	C.	
☞	30.31	60	45				67							

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 21, 1893, TO OCTOBER 27, 1893.

LIEUT.-COL. ALBERT HARTSUFF, deputy surgeon-general, is relieved from duty at Fort Omaha, Nebraska, and ordered to report in person to the commanding general, Department of California, for duty as medical director of that department to relieve COLONEL JOSEPH R. SMITH, assistant surgeon-general.

COLONEL SMITH, on being relieved by LIEUT.-COL. HARTSUFF, will proceed to Governor's Island, N. Y., and report in person on December 4th, to the commanding general, Department of the East, for duty as medical director of that department.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIVE WEEKS ENDING OCTOBER 21, 1893.

FESSENDEN, C. D., surgeon. Granted leave of absence for thirty days. October 4, 1893.

BAILHACHE, P. H., surgeon. Detailed as delegate to meeting American Public Health Association. October 5, 1893.

VANSANT, JOHN, surgeon. Granted leave of absence for thirty days. September 23, 1893.

HUTTON, H. H., surgeon. Detailed as chairman, Board to inspect Gulf Quarantine Station. October 17, 1893.

HAMILTON, J. B., surgeon. Granted leave of absence for three days. October 2, 1893.

GASSAWAY, J. M., surgeon. Detailed as member, Board to inspect Gulf Quarantine Station. October 17, 1893.

MEAD, F. W., surgeon. To rejoin station (Washington, D. C.). September 19, 1893.

CARTER, H. R., surgeon. To proceed to Way Cross, Ga., for temporary duty. October 4, 1893.

KALLOCH, P. C., passed assistant surgeon. Granted leave of absence for twenty days. October 9, 1893.

BROOKS, S. D., passed assistant surgeon. To proceed to Chicago, Ill., for temporary duty. September 19, 1893.

GOODWIN, H. T., passed assistant surgeon. Granted leave of absence for thirty days. September 27, 1893.

COBB, J. O., passed assistant surgeon. Granted leave of absence for thirty days. October 11, 1893.

GUITERAS, G. M., passed assistant surgeon. Detailed as recorder, Board to inspect Gulf Quarantine Station. October 17, 1893.

WERTENBAKER, C. P., passed assistant surgeon. Granted leave of absence for seven days. September 26, 1893.

PERRY, J. C., passed assistant surgeon. Granted leave of absence for seven days. October 5, 1893.

GARDNER, C. H., assistant surgeon. To proceed to Port Townsend, Washington, for temporary duty. October 7, 1893.

NYDEGGER, J. A., assistant surgeon. To proceed to Way Cross, Ga., for temporary duty. October 8, 1893.

NORMAN, SEATON, assistant surgeon. Granted leave of absence for four days. October 4, 1893.

SPRAGUE, E. K., assistant surgeon. Granted leave of absence for three days. October 7, 1893.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL OBSERVATION. — A regular meeting will be held at 19 Boylston Place, on Monday, November 6th, at 8 o'clock.

Readers: Dr. J. H. McCollom, "Some Remarks on Diphtheria." Discussion by Dr. A. L. Mason, Dr. Durgin, Dr. F. H. Williams and Dr. Jackson.

Dr. J. W. Farlow, "Some Remarks on Hypertrophy in the Post-Nasal Space." Discussion by Dr. F. I. Knight, Dr. A. Coolidge, Jr., and Dr. F. L. Jack.

JOHN C. MUNRO, M.D., *Secretary*.

APPOINTMENTS.

DR. ROBERT T. EDES, of Jamaica Plain, has been appointed Shattuck Lecturer before the Massachusetts Medical Society for 1895. The Shattuck Lecture for 1894 will be given by DR. THOMAS DWIGHT, of Boston.

RECENT DEATHS.

DR. RICHELOT, the founder of L'Union Médicale, died recently in Paris, aged eighty-seven years.

PROFESSOR LEFORT, Vice-President of the Académie de Médicine of Paris, died at Paris, October 19th, aged sixty-one years.

BOOKS AND PAMPHLETS RECEIVED.

A New Material for Surgical Splints and Jackets, with a Method for Applying it. By Edward A. Tracy, M.D., Boston, Mass. Reprint. 1893.

A Novel Proposition; Revolutionizing the Distribution of Wealth; Farm Products Moved as Mail Matter at a Uniform Rate for all Distances. By David Lubin, Sacramento, Cal. Reprint. 1893.

Transactions of the American Surgical Association. Volume the Eleventh. Edited by De Forest Willard, M.D., Recorder of the Association, Philadelphia: Printed for the Association and for sale by W. J. Dornan. 1893.

Sarcoma of the Pia and Brain, Simulating Brain Tumor; Mono-Spasm and Mono-Paresis; Operation; Death on the Third Day. Some Points in the Diagnosis and Treatment of Intra-Cerebral Hæmorrhage and in the Treatment of Chorea. By J. T. Eskridge, M.D., of Denver, Col. Reprints. 1893.

A Manual of Diseases of the Nervous System. By W. R. Gowers, M.D., F.R.C.P., F.R.S., Consulting Physician to University College Hospital; Physician to the National Hospital for the Paralyzed and Epileptic. Second edition. Revised and enlarged. Vol. II. Diseases of the Brain and Cranial Nerves, General and Functional Diseases of the Nervous System. With 182 illustrations, including a large number of figures. Philadelphia: P. Blakiston, Son & Co. 1893.

Chirurgie des Voies Urinaires Etudes Cliniques. Par le Dr. E. Lournean, Professeur Libre de Clinique des Maladies des Voies Urinaires; Professeur d'Anatomie a l'école des Beaux-Arts; Ancien Chef de Clinique Chirurgicale a la Faculté de Médicine; Secrétaire de la Société de Médicine et de Chirurgie. Second edition. Revue augmentée et accompagnée de cinq planches hors texte noires et chromo lithographiées. Bordeaux: Feret et Fils. 1894.

Original Articles.

SUDDEN DEATH DUE TO THE HEART.[1]

BY WILLIAM T. COUNCILMAN, M.D., BOSTON.

IN this paper I shall not consider the cases of death due to the actions of poisons on the heart nor the effect of traumas, although both of these are subjects of great interest. The action of the heart in keeping up the circulation of the blood is one which is absolutely essential to the maintenance of life. Anything that interrupts the continuous circulation of the blood through the lungs and through the systemic circulation brings about at once a cessation of the life of the individual. We are not yet fully informed as to the conditions under the influence of which the heart beats with its normal sequence and regularity. It was for a long while supposed that the action of the heart depended upon the nervous ganglia contained within it. These ganglia are abundant in the mammalian heart, and are situated along the large veins emptying into the heart, in the walls of auricles, in the auriculo-ventricular grooves and in the basal portions of the ventricles. It was generally supposed that from these ganglia motor impulses passed to the muscular fibres of the several parts, causing rhythmic contraction of these fibres, the sequence and co-ordination of which were due to a co-ordination between the several ganglia in regard to the generation of impulses. There were various experiments which seemed to prove this. It was shown that when the frog's heart was divided in such a way that each segment contained portions of the ganglionic cells, that the segments in connection with the ganglia would continue to pulsate, while those segments in which there was no connection with ganglia would remain quiescent. Thus, if the lower portion of the ventricle of a frog's heart be cut away, it will cease to pulsate, while the auricles and the portion of the ventricle remaining attached to them continue to contract. The heart may be bisected longitudinally without any loss of its contracting power; and the auricles, which in the frog's heart contain the most ganglia, may be cut into small bits, and they will continue to contract.

Recently, however, a number of experiments have shown that this dependence of the heart-beat on nervous impulses proceding from the ganglia cannot be held without reserve. Portions of the heart, and even strips of its muscular substance, will continue to beat with regularity while immersed in blood-serum. The reluctance of portions of the ventricle to execute spontaneous contraction when severed from the auricles seems to be peculiar to the frog. In the tortoise, for example, portions of the ventricle containing no nerve-cells will beat spontaneously and with a natural rhythm when separated from the auricles. A consideration of all that can be learned experimentally as to the cause of the natural rhythmic contraction of the heart would seem to show that it is independent of nervous action and due to changes taking place in the muscle itself. In various ways the muscular substance of the heart differs from that of the skeletal muscles. It is not so completely differentiated. The striation, although present, is not so distinct, and the closer division of the fibres into cells, and the anastomosis of these cells with one another, is different from the other muscles; and it is possible that the continuous rhythmic contraction is due to this close anastomosis of the fibres. What part the ganglia play in the contraction is uncertain. It may be that they exercise some trophic influence, or they may serve as depots to distribute to all portions of the heart nervous impulses, reaching them from without.

It is not possible to apply to mammals without reserve the result of the experiments which have been made on the hearts of frogs and tortoises. In these animals the substance of the ventricle is very much looser, and the blood from the ventricular cavity can bathe almost all portions of the muscles. In mammals the case is different, because here, owing to the greater amount of muscle and the closeness of its texture, its nutrition can in nowise be kept up by the blood within the ventricle. In order that the proper amount of blood for nutritive purposes should reach the muscle, the circulation in the coronary vessels is necessary. We shall see that the functional activity of the heart depends more on the integrity of the coronary circulation than on any other factor; and when any impairment of this circulation reaches a certain degree, the action of the heart ceases. The proper function of the heart seems further to be in some way dependent on the proper functioning of all its parts. Impairment of one portion of its muscle by degeneration is frequently followed by sudden cessation of function in all other parts.

We can divide these cases of sudden death coming from the heart into two classes. We can consider, first, conditions arising within the heart which render the circulation of the blood through it impossible; and, secondly, those conditions coming from the heart which interfere with its function, no impediment being given to the circulation of the blood through the heart by these conditions. We will first consider those conditions which arise within the cavities of the heart, interfering with its circulation. We may have, in the first place, as a very rare condition, thrombi of such size formed within the heart that the passage of blood through its cavities is obstructed. The formation of smaller thrombi within the heart is a comparatively common event. They may be formed in either one or both sides of the heart, and the most common place for their formation is within the auricular appendages of the heart. These may become entirely occluded by the formation of thrombi. The thrombi formed in the ventricles, are, as a rule, small, and are seated usually in the trabecular tissue of the apices. These do not give rise to trouble in the heart itself, although when carried from the heart they may produce various troubles, and even sudden death, by occluding the arteries going to parts essential for life. The thrombi formed in the auricles are, however, rather more extensive. The most extensive formation of thrombi is usually associated with chronic endocarditis and stenosis of the mitral valve. This plays an important role in the first formation of the thrombi. The great dilatation of the auricle and its imperfect emptying leads to the stagnation of the blood in certain parts, especially in the appendices. There may be an enormous formation of thrombi in the auricle, and the mouths of one or more of the pulmonary veins may be occluded by the thrombi, without causing immediate cessation of the cardiac action.

Mural thrombi may be formed at the openings of

[1] Read at the meeting of the Massachusetts Medico-Legal Society, October 4, 1893.

the heart, and may be sufficiently extensive to prevent the entry or the exit of blood. The specimen which I present and which I owe to the kindness of Professor Draper, illustrates this. The specimen comes from a young man of twenty-five who died suddenly. There is an acute endocarditis with vegetations on the aortic valve. In the sinus of Valsalva, behind the anterior segment of the aortic valve, a thrombus has formed which terminates in a large globular mass. It is very probable that during life this floated freely in the aorta. At the autopsy, it was found as it is now, below the valves within the ventricle. It is possible that it may have been forced into the ventricle at the close of the systole, and then on the next contraction of the ventricle may have been wedged into the orifice by presenting a longer diameter, thus closing the orifice and instantly stopping the circulation. The condition is an exceedingly interesting one, and in looking over the literature of heart thrombi I have not found a similar case. It would be difficult to explain the sudden termination of life in any other way.

Of most importance in this connection are the so-called free thrombi in the heart. This condition was first observed by Von Rechlinghausen,[2] and described by him in his treatise on the general pathology of the circulation. He describes two cases of marked mitral stenosis in which there were free thrombi the size of small walnuts in the left auricle.

Cases have since been described by Macleod[3] and Hertz,[4] and lately another case has been reported by Arnold.[5] Hertz first brought forward the idea that the free thrombi in the auricle could occlude the auriculo-ventricular valve, acting as a ball valve and so produce severe symptoms, or in some cases sudden death. Von Recklinghausen,[6] in a criticism of the paper of Hertz in which he gives the clinical history of his two cases, takes ground against the ball-valve theory of Hertz. In both of his cases death was not sudden, and there were no symptoms during life which denoted any sudden impediment to the circulation. In one of the cases which Hertz reports there was sudden death, and in the other there were several attacks of collapse which he was inclined to attribute to temporary occlusion of the valve. The same was true in the case reported by Macleod. In the afternoon the patient was seized with convulsions and shortly after became unconscious. The pulse was very small, weak, and the cyanosis extreme. This condition was gradually recovered from, and at nine o'clock in the evening of the same day there was a similar attack which lasted until death, which took place the following morning. In the case reported by Arnold, although there was some evidence of sudden impairment of the action of the heart, orthopnœa and intense cyanosis three weeks before death, the manner of death was not such as could be attributed to a sudden cessation of the circulation. These free thrombi in the heart are always round, their roundness being probably due to their motion within the auricle and probably to their increase in size by the continuous addition of new masses of fibrin. Their origin appears to be always the same. They are associated with the presence of adherent thrombi either in the auricular appendices or elsewhere in the auricle. Long thrombi, sometimes projecting to a considerable extent from the surface with a small base of attachment, are sometimes found adherent to the wall of the auricle. These form the so-called heart polypi of the old writers. These masses can become detached, and from their continual motion rolling round and round in the auricle can acquire a round shape. They are necessarily always associated with stenosis of the mitral valve, for with a valve of normal width the masses separated from the mural thrombi would pass through into the ventricle. That they can become a cause of sudden death by closing as a ball valve the narrow auriculo-ventricular orifice appears evident from the case of Hertz and from a case which I observed at the Johns Hopkins Hospital. The case was that of a woman with a history of previous attacks of rheumatism, and the clinical evidences of mitral stenosis. She came into the hospital for the relief of her symptoms of dyspnœa, dropsy, etc., and after being there for a short time died suddenly, falling back in bed when about to arise from it. At the autopsy, the usual changes in the other organs due to mitral stenosis were found. In the heart itself there was a considerable hypertrophy of the right ventricle, with some dilatation. The left auricle was greatly dilated and hypertrophied. The mitral orifice contracted to a button-hole which would only admit the first joint of the little finger. There were large thrombi masses in the auricular appendices, and a round free thrombus which was lying on, and occluding the mitral orifice, and partially pressed into this. The thrombus was of circular shape, the surface slightly irregular, and at no point was there an irregular surface showing that it had been recently broken away. There can be little doubt, however, that it had originated from the thrombi in the appendices, and that it had been free in the auricle for some time. The condition is one which is rare, and the cases which I have mentioned are the only ones which I have found in the literature.

The cessation of the circulation may also be due to the stoppage of emboli in the heart. According to Terrillon,[7] emboli carried to the right heart from the systemic circulation do not always pass through the heart into the pulmonary circulation, but may remain in the heart producing there an impediment to the circulation. In this case, he says that the heart does not cease instantly, but its beats become gradually smaller and scarcely perceptible, and a condition of extreme cyanosis, followed by death, results. In such a condition the embolus must be an extremely large one, and it is probably caught in the ventricle, and from the continuous addition of thrombi to it, it may occlude the orifice of the pulmonary artery.

These seem to be the only conditions which interfere with the circulation of the blood through the heart by obstructing its orifices. We must now consider those cases in which the mechanism of the heart itself breaks down. We may divide these into the cases in which pathological condition is seated in the muscular substance of the heart or in the valves. There are a number of cases reported in the literature of the heart of the sudden rupture of a valve. Generally, the aortic valve is the one ruptured; and the rupture is generally due to sudden and severe muscular effort, and may take place in a perfectly normal individual. The condition is one which may be

[2] Von Rechlinghausen: Handbuch der allgemeine Pathologie des Kreislaufes und der Ernährung.
[3] Macleod: Edinburg Medical Journal, February, 1883.
[4] Hertz: Deutsches Arch., Bd. xxxvii.
[5] Arnold: Zeiglers Beitrage, Bd. viii.
[6] Von Rechlinghausen: Bemerkungen zur Abhandlung des Herrn Dr. Hertz. Deutsches Arch., Bd. xxxvii.

[7] Terrillon: De la mort subite par embolie dans la cœur droit. Arch. gen. de Med., 1878.

produced in a dog by passing a sound into the aorta from the carotid, and tearing away one of the aortic valves. There is usually sudden collapse, which is recovered from when the heart's action increases to meet the sudden demand thrown upon it. I have seen one case in which sudden rupture of several of the chordæ tendiniæ of the mitral valve was sufficient to instantly stop a diseased and hypertrophied heart. The case was that of a man with extensive visceral syphilis and Bright's disease. He rode to the hospital in a car, and after leaving the car and walking up the few steps leading to the dispensary, he fell dead. At the autopsy, there was found an acute and chronic endocarditis which had affected the chordæ tendiniæ, and several of these belonging to the aortic segment of the mitral valve had ruptured, allowing the valve to flap back into the auricle and destroying its functions. It is difficult to see how such an accident could happen in a normal heart; and even should it take place it would probably not result in sudden death.

A very much larger number of cases of sudden death are due to conditions affecting the integrity of the myocardium and its power of contraction. It has been shown by numerous experimenters that a normal circulation in the coronary vessels is essential to the function of the heart, and those pathological conditions of the heart itself which lead to sudden cessation of its action are in the main or entirely to be referred to diseased conditions of the coronary arteries. That sudden death is common in heart disease is a widespread belief among the laity. As a rule, in cases of heart disease of the ordinary type in which there are marked evidences of the condition during life, chiefly shown by the results in other organs of impairment to the circulation, death does not take place suddenly, but is generally to be referred to the gradual increase of the conditions brought about by the impairment of the circulation. Cases in which the trouble lies in the mitral orifice, whether stenosis or regurgitation, or both, rarely or never die suddenly. Sudden death, though not common, may take place in cases of stenosis of the aortic orifice.

In stenosis of the aortic valves the intraventricular pressure must be greatly increased in order to overcome it, and with this there is probably a greater degree of hypertrophy than is met with under any other circumstances. Moreover, stenosis of the aortic orifice is frequently accompanied by, and often the result of changes in the arteries, which in themselves lead to hypertrophy. It is possible that the greatly hypertrophied and dilated ventricle may suddenly have an amount of work thrown on it which it cannot accomplish. In consequence of sudden exertion, or some pschychical influence quickly increasing blood-pressure, the ventricle cannot contract on its contents and there is an end. More often, however, the sudden death which takes place in aortic stenosis is due to conditions of the myocardium which may accompany the disease of the aortic valves. Those cases of aortic stenosis which arise after the fortieth year, and have not been preceded by an acute endocarditis are generally due to an extension to the aortic valves of arteriosclerosis of the aorta. The same process also very generally affects the coronary arteries, and death, in cases of aortic stenosis, is more often due to this affection of the arteries and the changes in the myocardium following it, than to the aortic stenosis in itself.

It is only of late that the important part which the coronary arteries play in the physiology and pathology of the heart has been fully recognized. The two arteries have few or no anastomoses with one another and are distributed to definite sections of the heart, being terminal arteries in the sense of Cohnheim. There is, of course, capillary anastomosis between the various arterial tracts, but there is little or no connection between the larger branches. There is a difference between the various authors as to the presence of and degree of this anastomosis, and there seems to be a marked difference in different hearts. In some cases abundant anastomoses between the right and left coronaries certainly exist as was shown by a case reported by Welch.[8] In this case the right coronary artery was occluded at its origin by a dense sclerotic patch in the aorta. Beyond this the artery was open and it must have received sufficient blood from the left coronary to suffice for its circulation. Stevens[9] found by making injections that communication between the two main arteries and between the various branches of each was sometimes found but does not think that this anastomosis is sufficiently well marked to compensate for the closure. Sternburg[10] studied by various means of injections the territories supplied by the different arteries. He finds that a large portion of the right auricle, the entire posterior part, and a large portion of the anterior part of the right ventricle, a large part of the inter-auricular, and the inter-ventricular septum, the posterior part of the left ventricle, and the posterior papillary muscles are all supplied by the right coronary artery. All other portions of the heart are supplied by the left.

The coronary arteries are among the arteries most liable to disease. They may be occluded by thrombosis or embolism or have their lumen narrowed or occluded by arterio-sclerosis and atheroma. There is a difference between the two arteries in the liability to disease. The left coronary is more frequently affected than the right, and the descending branch of the left coronary more frequently than any other single branch. If a very small branch of the artery be occluded the circulation in the territory supplied by it may be kept up by anastomosis through the capillaries, but this only holds for a very small branch. Occlusion or narrowing of a large arterial branch is followed by the same result which takes place in any other portion of the body where the arteries are terminal, as in the kidney or spleen. The portion of the tissue supplied by the affected artery will, if the occlusion be complete, be cut off from its supply of blood. This will produce necrosis of the tissue elements and of the walls of the blood vessels. The area will be pale, anæmic and we have the conditions of the white infarction. In some cases a large amount of blood will flow into the previously anæmic area from the capillaries of the surrounding tissue. The injured blood-vessels will allow free hæmorrhage to take place from them into the tissues and the condition known as hæmorrhagic infarction is produced. In other cases we have a mixture of the two, an infarction with an anæmic central territory, surrounded by hæmorrhage. The infarctions rarely take place except when the occlusion of the artery is sudden and complete as by thrombosis or embolism. The condition which is more common than infarction

[8] Welch: Johns Hopkins Hospital Bulletin, vol. ii.

[9] Stevens: Lectures on fibroid degeneration and allied lesions of the heart and their association with disease of the coronary arteries.

[10] Sternburg: Ueber Erkrankungen des Herzmuskels in Anschluss auf Störungen des Coronararterienkreislaufes, Dissert Marburg, 1887.

is one of imperfect nutrition of the heart followed by degeneration of the muscular substance, and produced not by a total occlusion but by a gradual narrowing of the artery. This is due to the ordinary arterio-sclerotic changes sometimes accompanied by atheroma. The nutrition of the tissue may also be affected by arterio-sclerosis without any narrowing of the lumen. The calibre of an artery always conforms to the needs of the tissue supplied by it and varies with the requirements of the tissue. The variations in calibre are produced by contraction of the muscular coat. The essential pathological change in arterio-sclerosis is destruction of the muscular coat, and its substitution by a dense unyielding connective tissue. This converts the artery into a rigid tube which, although performing the mechanical work of bringing blood to the tissue, cannot vary the lumen to meet the demands of the tissues.

Coronary arteries stand in causal relation with the pathological condition known as fibrous or chronic myocarditis. This condition is characterized by the presence of smaller or larger whitish opaque masses of fibrous tissue which is substituted for the muscular tissue. In most cases it may be seen in the endocardium, and extends from this into the muscular tissue; in other cases it does not extend into the endocardium, and the evidence of its presence is only obtained by making sections of the muscle parallel with its surface. Although spoken of as myocarditis, it probably is not an inflammation but the fibrous tissue simply takes the place of the previously degenerated muscular tissue which has been absorbed. The process is one which is rarely found in the right ventricle, and is usually confined to the left side of the heart where it affects the apex of the ventricle and the papillary muscles. It is nearly always due to arterio-sclerosis of the coronary artery distributed to the area, its distribution in the heart conforming to the distribution of the artery most frequently affected.

Most authors agree that fibrous myocarditis is exclusively due to the disease of the coronary arteries. I have recently, however, seen a case which shows that it can be due to other conditions. The case was that of a man who died suddenly a few days after entering into the hospital. He had previously been treated for syphilis, and at the time of his death there were evidences of a slight papillar syphilide on his body. His chief complaint on entering the hospital was dyspnœa. At the autopsy there was found obliteration of the pericardium and the formation of dense sclerotic masses of connective tissue in both layers of the pericardium. The pericardium was adherent in its whole extent, and here and there in the thickened tissue some slight caseous material was found. The right ventricle was enormously dilated, being fully as large as a normal heart. All the valves of the heart were normal. Throughout the right ventricle there were numerous masses of fibrous myocarditis, some of which were two centimetres in diameter. They were distributed not only throughout the outer surface of the ventricle, but along the septum. There was also a patch of fibrous myocarditis in the left ventricle, in the septum and a few small patches at the apex. The coronary arteries were normal with the exception of a perfectly circumscribed patch of endarteritis in the left coronary artery around the mouth of a large branch going into the septum. The intima here was thickened and roughened but the calibre of the artery was very slightly affected. Microscopic examination showed that the patches of fibrous myocarditis in the right ventricle were in every case closely connected with the fibrous pericarditis, and it seemed to be due merely to an extension of the fibrous tissue from the pericardium into the myocardium. It was accompanied by a well marked arteritis of the smaller arteries. There was clear evidence of syphilis given in a fibrous orchitis in both testicles. There is little doubt that in this case the myocarditis was directly due to the pericarditis which was very probably in close relation with the syphilis. The marked disease of the small arteries in the affected foci would point clearly to this. The dilatation of the ventricle was due to the fibrous myocarditis, and the sudden death to the same cause.

Although this formation of fibrous tissue is essentially conservative in its action, supplying a firmer tissue than the degenerated muscle, it is infinitely less resistant than the normal tissue of the heart. It gradually gives way before the pressure in the ventricle and is the cause of aneurism of the heart. These aneurisms of the heart are essentially the same as aneurism of any of the arteries. They frequently contain a large amount of laminated fibrin in their walls. They may form in any part of the heart, but are much more frequent in the apex of the left ventricle. Rupture of the heart, leading to sudden death in a large percentage of the cases, may take place through the walls of such an aneurism.

Death from non-traumatic, the so-called spontaneous rupture of the heart, cannot be regarded as extremely uncommon. I have seen four cases and there are a great number of cases reported in the literature. It would not be within the purpose of this article to enter fully into the literature of the subject. The fullest accounts with statistics are given by Bottger,[11] Barth [12] and Meyer.[13] It may be regarded as certain that rupture, even under the greatest sudden increase in pressure, never takes place in a normal heart. The various conditions of the heart which precede rupture are those due to coronary artery disease. The connection between rupture of the heart and disease of the arteries was first recognized by Barth, and since then has been noted in all cases in which the arteries were examined. The pathological conditions of the myocardium which may lead to heart rupture, are fibrous myocarditis, with or without aneurism formation, circumscribed fatty degeneration, necrosis and fatty infarction.

The only condition of the heart not connected with disease of the coronary arteries which may be followed by rupture is fatty infiltration. In this condition there is a development of fat on the outside of the heart, beneath the pericardium, which may penetrate beneath the muscular fibres, thus weakening the heart. In the earlier literature several cases of this have been reported, but since the condition of the coronary arteries has received careful attention, there has been no report of this. It must be very exceptional to have such a degree of fatty infiltration that it can lead to rupture of the heart.

With regard to the frequency of rupture of the heart, Devergie [14] reckons it as producing two and one-half per cent. of the cases of sudden death. Aran

[11] Bottger: Ueber die spontanen Rupture des Herzens, Arch. d. Heilkunde, 1863.
[12] Barth: De la rupture Spontanée du cœur, Arch. gen. de Med., 1871.
[13] Meyer: Zur Kenutriess der spontanen Herzruptur, Deutsches Arch., Bd, 43.
[14] Devergie: Médicine Legale, 1840.

(quoted from Bottger) found in 202 cases of sudden death with changes in the organs of circulation, 113 produced by affections of the heart without rupture, and 88 by rupture. To both traumatic and spontaneous rupture of the heart the male sex is more disposed than the female. Elleaune [15] found in 18 cases of rupture of the heart, 16 in males and only two in females. In the traumatic rupture the greater frequency in males may be explained by their greater exposure to danger. And in the spontaneous rupture of the heart to the fact that men are more disposed to lesions of the vessels than women.

With regard to the seat of rupture, Ollivier [16] found in 47 cases that the seat of the rupture in 34 was in the left ventricle; in eight the right; in three the right auricle, and in two the left auricle. Bayley has found in 19 cases the seat of the rupture was in 16 the left ventricle, and in three the right ventricle. In 62 cases collected by Bottger, the rupture in 47 was in the left ventricle, in five the right, in five the right auricle, in one the left auricle, one the intraventricular septum, one in both ventricles and in one extending from the right auricle into the right ventricle.

As might be expected the condition is one which is most apt to be found in the later years of life. In 50 cases which Bottger has collected in which the age is given, there were found

Between	20 and 30 years	1
"	30 and 40 "	2
"	40 and 50 "	6
"	50 and 60 "	7
"	60 and 70 "	18
"	70 and 80 "	11
"	80 and 90 "	4
"	90 and 100 "	1

This is clearly due to the greater frequency of vascular diseases as age advances.

In most cases the rupture is a perfectly clean one making a straight passage through the wall of the heart. This is especially the case when the rupture is preceded by an aneurism. In other cases the rupture does not take place directly through the wall of the heart, but the rupture into the pericardium may be at some distance from the rupture into the endocardium, the blood burrowing into the wall of the heart and making a fistulous passage. In some cases in which the rupture has been preceded by a hæmorrhagic infarction, the hæmorrhage into the muscular tissue is very extensive and from this it appears to penetrate both into the endocardium and into the pericardium. Mettenheiner [17] reports a case in which there was rupture of the myocardium with extensive hæmorrhage beneath the pericardium, which had not penetrated into the pericardial cavity. The pericardium for a considerable distance was separated from the myocardium by the hæmorrhage. Such a case is analogous to a dissecting aneurism. The rupture of the heart sometimes takes place when the patient is quiet and there is no excitement of any sort. In other cases the rupture appears to be due to some sudden increase of the blood-pressure, either brought on by muscular exertion or excitement of some sort.

Wadman [18] reports a case in which in a man, sixty-four years old, rupture took place during coitus, and a number of similar cases have been collected by Bottger. Geo. II, of England, is said to have died from rupture of the heart while at stool, and Philip V, of Spain, on hearing the report of the defeat at Piazensa.

Death is not always instantaneous in rupture of the heart. If the rent be a considerable one and a large hæmorrhage takes place at once into the myocardium, death is instantaneous. A number of cases have been reported in which the beginning of the rupture was apparently marked by fainting and death followed several hours afterwards.

The same effect as rupture of the heart itself may be given by rupture of any of the great vessels within the pericardium. The rupture may take place here, either through an aneurism or through a degenerated spot in the aorta.

In the four cases of rupture of the heart which I have seen, three took place in the left ventricle. One of these was preceded by an aneurism. In two, death was immediate, and in one in which there was a long passage between the endocardium and the myocardium, death was gradual. In another case in which an aneurism of one of the sinuses of Valsalva burst into the right ventricle, the manner of death was also slow. I have also seen one case in which death was due to rupture of the aorta within the pericardium. In all of these cases death is not due to the hæmorrhage. The amount of blood found within the pericardium is never sufficient to have produced death. The amount of blood which is found depends upon the rapidity and extent of the rupture. The pericardium is a distensible cavity, and if the pressure be slow it may be gradually distended to a considerable degree before an amount of blood accumulates within it which will be fatal. The death, of course, is due to an increase of pressure within the pericardium, preventing the entry of venous blood into the heart and so stopping the circulation.

In rare cases sudden death may take place from pericarditis. When the pericardial pressure is suddenly increased by the rapid accumulation of an exudation, death may be sudden. In a case autopsied at the City Hospital during the past year in which death took place suddenly, there was a large hæmorrhage into the pericardium which had evidently come from hæmorrhage from the greatly-distended vessels of the pericardium. This case, however, was complicated by an acute myocarditis which may have contributed greatly to the effect of the pericardial exudation.

Rupture of the heart does not seem to follow cases of ulcerative endocarditis even when the ulceration is extensive. In rare cases the rupture may be due to the presence of new formations in the heart or to parasites. Berth found one case in which rupture had first taken place into a large echinococcus cyst of the heart and then into the pericardium.

Although a circumscribed fatty degeneration of the heart due to coronary disease may lead to rupture, this does not take place in the general fatty degeneration of the cardiac muscle, which comes on in the acute infectious diseases. Probably in such cases there may be combined with fatty degeneration a diminution in the force of the cardiac contraction and the intraventricular pressure.

A much greater number of cases of sudden death is due to disease of the coronary arteries without rupture of the heart. This fact is one to which attention has only recently been directed when greater attention has been bestowed on the pathology of the coronary

[15] Elleaume: Essai sur les ruptures du cœur, Thése, Paris, 1854.
[16] Ollivier: Dictionnaire de Med., viii.
[17] Mettenheiner: Arch. f. Wissench., Heilkunde, Bd. ii.
[18] Wadman: Lancet, 1868.

arteries. It is probable that most of the cases of sudden death without apparent cause, which have been reported, were due to diseased conditions of the coronary arteries which were overlooked at the autopsy. Death from this may be the most sudden of any of the forms of death, whether proceeding from the heart or elsewhere. The individual often falls as if struck with lightning. As in rupture of the heart, death may be preceded by some muscular or psychical disturbance, or it may come on without any immediate exciting cause. The cases are usually those of individuals who have passed the fortieth year, and who have not denied themselves the pleasures of life. All the conditions which favor the development of general arterio-sclerosis favor the similar process in the coronary arteries. In some cases death has been preceded by attacks of angina pectoris, and it may take place in such an attack.

In almost all cases we find that the arterial disease has produced lesions in the myocardium before death. The most common of these are the more or less extensive patches of fibrous myocarditis. Rare cases are seen, however, in which there is considerable disease of the arteries without any macroscopic evidence of degeneration in the myocardium. Microscopic examination in such cases will usually show rather diffuse hyaline degeneration with slight connective-tissue increase. We can easily understand, supposing the circulation in the coronary arteries to be necessary for the function of the heart, that the instant closure of a main artery or a large branch by embolus should be followed by an instant cessation of the heart's function. But it is more difficult to understand the sudden stopping of the heart without any previous symptoms, in those cases in which the closure of the vessel takes place gradually. Cohnheim[19] has shown that tying off a large branch of one of the coronary arteries for a time produces no symptoms, and then there is a great fall of blood-pressure, and, after a few convulsive movements, the heart stops. There is no doubt that disease of certain of the coronary vessels is more serious in its consequences than others. Sudden death is more frequently associated with disease of the descending branch of the left coronary than any other. The gradual closure of the arteries, with degeneration of their walls and nutritive changes in the myocardium, may go on for a long time with but little impairment of function. The last straw, however, is finally laid on the back of the overloaded camel and the back breaks suddenly.

THE HYGIENIC ARGUMENT FOR CREMATION CONSIDERED FROM A BACTERIOLOGICAL STANDPOINT.[1]

BY A. K. STONE, M.D.

(Concluded from No. 18, page 435.)

THERE remain to be spoken of only the various experiments that have been made to determine the number of bacteria in the soil. The first of these were open to serious error because of faulty technique. But Fränkel[9] and Reimer,[10] the former working on the sandy soil of Berlin, and the latter on the heavier soil of Jena, have arrived at practically the same conclusions in regard to the bacteria in the soil, namely, that the number on the surface was very large, and the diminution from this amount was very rapid, especially after the depth of three-fourths of a metre was reached; and at one and three-fourths metres the numbers were very small indeed. Or, as Reimer puts it, to a certain depth the number of bacteria is very high, but always less than are to be found on the surface. With increasing depth there is a sudden and sharp decrease of the number. The zone in which this sudden diminution takes place is, in both Berlin and Jena, between one and two metres. The exact position of this zone depends on the condition of the soil, as, for example, the line is deeper in cultivated than in virgin soil. At a depth of two metres the soil can be germ free (of ærobic bacteria). More rapid growth is observed in specimens taken from the upper strata than in those from lower.

The ground-water seems to have various influences upon the condition of things. In some cases the regular diminution took place in spite of the presence of the ground-water; in other cases there was a marked increase in the number of germs when the ground-water was reached. So that the conditions of the porosity of the soil and the amount of foul matter poured upon it probably influence the number of bacteria to be found in the ground-water.

An interesting portion of Reimer's investigations is that made in the cemeteries of Jena and Little Jena. Examinations were made in seven graves, which have been in use for from one and one-half to thirty-five years; also a set of control experiments were made in the ditches in neighboring gardens. It was found first: That the number of bacteria in the ground of the graveyards and the gardens was practically the same, though in both cases larger than in ground that had never been disturbed. As soon as a depth was reached where the earth had never been moved, the figures promptly fell to correspond with those of similar depths of virgin soil. The earth immediately below the coffins in the exhumation, showed a marked increase in the number of bacteria over the average of similar depths, yet considering the circumstances, the increase was smaller than was to be expected: while at a distance of half a metre below the coffins, the number of bacteria returned to the average that was to be expected at that depth. At a level of the upper surface of the coffins there was no increase from the average in the number of bacteria found.

Beumer (although his technique is open to criticism) has also similar results to those of Reimer. He did not, however, carry his investigations as far as could be wished, for he made no examination of the earth below the level of the coffins, that is, six feet.

Gärtner[11] also derived similar results from an investigation of two cemeteries.

In 1890, investigations were begun to determine the hygienic condition of the cemetery of the Charité Hospital[12] in Berlin. No burials had taken place since 1859, and the government wished to find out whether the cemetery could justifiably be used for building purposes. Proskauer was detailed by Koch to conduct the investigations, and the results of his work are briefly as follows:

[1] Read before the Warren Club.
[9] Fränkel: Zeitschrift für Hygiene, vol. ii. 1887.
[10] Reimer: Zeitschrift für Hygiene, vol. iii, 1889.
[19] Cohnheim and Reclberg: Ueber die Folgen d. Kranzarterienverschliesiung für das Herz, Virch. Arch., 85.
[11] Gärtner: Tageblatt der Naturforscher-versammlung, Heidelburg, 1889. Quoted by Prokann.
[12] Proskauer: Zeitschrift für Hygiene, vol. xi, 1891.

At a depth of 1.70 metres the soil is rich in human remains and remnants of coffins. The decay of these human bodies has been so complete in the last thirty-one years that in the upper layers of the earth there was no difference to be discovered, either chemically or bacteriologically, from earth that had never served for graveyard purposes. The chemical investigation at a depth of .5 to 1.50 metres, that is, directly at the level that the coffins had occupied, showed that the earth was in no ways overladen with rotting organic material, and that on the contrary it was poorer in nitrogenous material than Flüge had found in the *aufgeschütteten Boden* — heaped-up earth — of Berlin. From 1.70 metres or from two to six metres in depth, the condition of the soil was similar in all respects to what would be expected in similar soils. There was not the slightest trace of nitrogenous matter and no micro-organisms.

The ground-water of the graveyard and the well-water had the same chemical properties as the water from the surface wells of Berlin, all of which contain large amounts of nitrogenous compounds, particularly nitrates. But Proskauer is of the opinion that the ground-water is already contaminated before it reaches the cemetery, and that there is no increase in the amount of organic matter during its stay within the boundaries of the old graveyard. The ground-water also showed itself free from micro-organisms; and finally Proskauer concludes, after taking everything into consideration from a hygienic standpoint, that there is no reason why the Alter Charité Kirchhof should not be used for dwellings or for hospital purposes.

The work of Domingos Freire, of Brazil, in his investigation of the causes of yellow fever, is frequently quoted as giving strong arguments in favor of cremation. He has stated that he has surely found the micro-organisms causing yellow fever; that he has recognized the same organisms in the earth of cemeteries in which the yellow-fever patients have been buried; and he has also claimed to have found a method of vaccination.

Sternberg,[13] Deputy Surgeon-General of the United States, after a series of investigations into the etiology of yellow fever, was not able to agree with Freire. And in his report, 1888, he states that no such micro-organism as described by Freire, or as shown by him to Sternberg, is to be found in the blood and tissues of yellow-fever patients. In later reports he concludes that the specific infectious agent of yellow fever has not been demonstrated. The most approved bacteriological methods fail to demonstrate the constant presence of any particular micro-organism in the blood or tissues of yellow-fever cadavers. This position is supported by Cormil and Babes in their work on "Les Bacteries," who do not consider that, at the date of their publication, 1890, any specific bacteria of yellow fever had been discovered. Therefore, we are forced to the position that, until further work has been done, Freire's work cannot be taken as authority.

Professor Graucher, of the Faculté de Médecine de Paris, and Professor Richard made a report to the International Congress of Hygiene and Demography, on the Action of the Soil on Pathogenic Bacteria. They reached the following conclusions:

Pathogenic bacteria are everywhere deposited only in the superficial layers of the soil; from .5 metres to 1.5 metres there are very few present. They multiply with difficulty in the ground, though in the spore state they may remain for a long time.

The pathogenic germs are destroyed, partly by the action of the saprophytic bacteria, and partly — when they are on the surface — by the action of the sun; the latter must be considered a powerful destroying agent. Continuous cultivation of the soil, which tends to bring bacteria from the lower depths to the surface, is the very best means to bring about the destruction of the pathogenic bacteria.

Disturbances of the earth's surface — for example, extensive excavations — put in circulation a large number of pathogenic germs. A solid layer of two or three metres of earth is usually sufficient to protect the ground-waters against contamination of pathogenic bacteria.

All the investigations above quoted correspond in a remarkable degree; so that we are justified in saying that, from a purely bacteriological standpoint there is no evidence that a buried body is a source of special danger to the living.

On the other hand, there can be no doubt that water and air are frequently contaminated by the presence of putrefying animal remains, as instanced in the analysis of well-water from cemeteries; as we see by reports of the well near Paris, which became distinctly foul shortly after the interment of the bodies of a large number of Prussian soldiers who had died of typhoid; or the story of the well in Paris where the water, contaminated by cemeteries, had a distinct taste of sulphur, so that it was bottled and sold as a mineral water; or from the undoubted cases where epidemics were of the greatest intensity in the near vicinity of overcrowded graveyards.

Why these occurrences have taken place, and what effect the decay of animal matter has upon the human being, we have at the present time no accurate means of knowing. Such data as we have can only be obtained when we study the subject of putrefaction. We cannot hold the old explanation that putrefaction is simply oxydation — the burning of the animal, in the same way that a bit of the animal would act if it were exposed to the flame. But decay, and the return of the body to its final elements, is not a simple chemical process, as is usually imagined, but a very complicated process, induced for the most part by the action of various bacteria upon the organized tissues, converting them into mid-products. The first stages, according to Flügge, consist in the change of the albumens into peptones, and this may be effected by a large number of bacteria. Among the products of putrefactive fermentation are carbon dioxide, hydrogen, nitrogen, hydrosulphuric acid, phosphoretted hydrogen, methane, formic acid, acetic acid, butyric acid, valerianic acid, crotonic, glycolic, oxalic, succinic, propionic, lactic and amidostearic acids, leucin, ammonia, ammonium carbonate, ammonium sulphide, trimethylamine, propylamine, indol, skatol, tyrosin, neuridin, cadaverin, putrescin, cholin, neurin, peptotoxin and various other volatile acids and ptomains.[14] These special products are not necessarily all present in any given body in the process of dissolution, but vary according to the place where the body may be put, or according to the presence of certain varieties of bacteria.

The nitrification of the organic products is also due to the presence of bacteria; and within a short time

[13] Sternberg: Manual, 1892.

[14] Sternberg: page 134.

two observers, quite remote from each other, have isolated a bacterium, which if not identical, is at any rate of the same species. I refer to Jordan's work at Lawrence, and Winogradsky's at Zurich. Similar work has also been done by Frankland and Warington. Thus far, bacteriological investigations have been confined to those bacteria which accomplish their work in the presence of oxygen, or to the aërobic bacteria; and but little attention has been given to those which work only when oxygen is excluded, the anaërobic bacteria, although it is known that the foul odors of putrefaction belong, for the most part, to the latter class. In none of the investigations above quoted were there attempts to discover the number of anaërobics that might be present, with the exception of the work of Proskauer, who said that some of the human remains were examined for anaërobic germs, but with negative results.

It is believed by men interested in sanitary questions, that sewage containing excreta and animal impurities, and micro-organisms, is best rendered pure by pouring it out on the soil and allowing it to percolate slowly through the upper layers, where it is met by the bacteria of decomposition which are present, as has been shown above, in great quantities. The retrograde changes then take place with great rapidity, and the whole process is hastened by the action of the sun and by the cultivation of the land; the plants seizing upon the particles of decomposing matter, as soon as it is reduced to the stage where it can become their food.

The difference between this process, which is advocated by many of the best sanitary authorities at present, — as instanced by the many sewage farms in operation, among which may be mentioned Berlin, Paris, and the towns of Framingham and Marlboro in this State, and the Experiment Station of the Massachusetts Board of Health where so many careful experiments have been carried out, — and the process that takes place where a body is buried in six feet of earth, is that in the case of the former, oxygen is always present, while in the case of the dead bodies oxygen is practically excluded; the argument being that the decomposing changes in the case of the sewage take place rapidly, because the bacteria have plenty of oxygen, which is necessary for their development. On the other hand, the dead bodies are buried so deep that all supply of oxygen is cut off, and decomposition does not take place,[15] or takes place so slowly that more of the poisonous mid-products of decomposition are allowed to form, and hence the body becomes a source of danger to the living by those soluble products of decomposition designated by the general name of ptomains, or appearing in the chemical analysis combined under the general heading of albuminoid ammonias.

The only experiment which I have been able to find, that bears directly on the occurrences which take place when a body is buried, is the one which is reported by the State Board of Health.[16]

A tank twelve feet in height was taken and filled to a depth of six feet with layers, first of coarse gravel, then of sand and loam from a cemetery. This was watered weekly, and the condition of the water noted. In December, 1889, the body of a dog weighing eleven and one-half pounds was put into the tank and buried beneath similar soil for the remaining six feet. This tank was watered regularly with an amount of water slightly larger in amount than what would correspond to the average rainfall on the same area. The outlet was tapped, and the escaping water was examined monthly for the space of two years. For six months practically no nitrification of the body had taken place. At the end of that time, there was an increase in both the nitrates and nitrites, and the free ammonia increased rapidly for the next five months, showing 26.625 parts per 100,000 by November, 1890. It then gradually fell off, but at the end of twenty-four months the amount was still 4.75 parts per 100,000. The albuminoid ammonia, in which the dangerous mid-products are represented, if present, increased but little for seven months, and then increased some for two months, after which it increased very rapidly, and for November, 1890, averaged 2.8000 parts per 100,000. From this time on there has been a steady fall, until December, 1891, there was but .1200 per 100,000.

The odor at the effluent grew very strong and offensive through April, May and June, and was most nauseating during the first part of July. Since then it has decreased, but all through the second year it had a strong, offensive odor. In December, 1890, the outlet was trapped, and in this way all possible supply of oxygen entering from below was cut off. The most important effect of this proceeding was, that the number of bacteria per cubic centimetre in the effluent water immediately fell off, and from 4,319 in September, 18,360 in October, 4,796 in November, the number became 96 in December, 362 in January, 10 in February, 52 in March, and has since never been above twenty; and for several months in midsummer was sterile.

This experiment bears out what has been said above, and tends to shift the burden of proof upon the chemists, calling on them to explain what the deleterious effects of drinking-water, which is contaminated with decomposing animal matter, may be.

I conclude, from a study of the effects of bacteria contained in dead bodies upon the health of living persons, that there is no good evidence whatsoever to show that, if the bodies are suitably buried, the bacteria which are probably the cause of the so-called zymotic diseases, can in any way contaminate the ground-water. The harm which decomposing human bodies may exert upon the living must be due, not to the specific pathogenic bacteria, but to poisoning of the air and water by the presence of volatile and soluble substances, which probably have the effect of depressing the general vitality of the persons subjected to the influence.

Under suitable conditions, the earth, with the assistance of the "bacteria of decomposition," appears to be a rapid and sure means by which bodies of persons dying of zymotic diseases may be rendered harmless and converted into material suitable for the maintenance of higher vegetable life.

Experience goes to show that the pathogenic bacteria are unable to resist for any length of time the chemical changes set up in the dead body by the bacteria of decomposition, excepting in the few rare cases, where spores are formed. These are able to resist the putrefactive changes for an indefinite period of time.

At the request of a gentleman who is much interested

[15] Seymour Haden reported that in 1875, when removing corpses from St. Andrew's Churchyard to level Holborn Hill, London, the bodies were in much the same state as when first buried, and decomposition was unadvanced and unadvancing; and little or no difference was discernable between the interments of yesterday and of King Charles II's time. International Congress of Hygiene and Demography, 1891.

[16] Massachusetts State Board of Health Reports. Purification of Sewage, 1890-1891.

in cremation, I undertook the task of going over the literature which has accumulated upon this subject and have tried to find out from a bacteriological point of view what arguments could be advanced in favor of cremation. The conclusions reached are not at all in accord with my preconceived ideas, and it appears as though it belonged to the chemists and not to the bacteriologists to prove, if possible, that cremation is a hygienic necessity. Of course economical and æsthetic arguments are entirely uninfluenced by the lack of evidence to support any given hygienic argument.

Clinical Department.

DIPHTHERIA: TRACHEOTOMY, PERSISTENT AND INCREASING DYSPNŒA, SYSTEMATIC CURETTING OF THE TRACHEA; RECOVERY.

BY CHARLES L. SCUDDER, M.D.,
Assistant in Clinical Surgery, Harvard Medical School, Boston.

A BOY, four years old, ordinarily in good health, had been ill with diphtheria for two days. His brother, one year younger, had died of the same disease one week previously. He was referred to me by Dr. T. M. Rotch, of Boston.

Very little disturbance of the tonsils and pharynx existed at the time of the first examination, the end of the second day's illness. The breathing was slightly difficult. The alæ nasi dilated a very little, the retraction of the supra-clavicular and epigastric regions with each inspiratory movement was just beginning to be apparent. In short, breathing was slightly embarrassed. The lungs were normal. The heart was in good condition. The temperature was low. The indication *par excellence* for operating was present, namely, increasing difficulty in breathing.

Tracheotomy was done. The relief, of course, was instantaneous. The boy was kept in a cot-bed covered by a hood of sheets, which was constantly filled with steam from two boilers.

All went well until the second day after the operation, when the secretion from the tube became a little sticky and slightly diminished in amount. The character of the secretion improved upon the use of a spray close to the tube, and the boy had a comfortable night. The third night, however, there was serious trouble. The secretion became very slight, the respiration rapid and labored, and the child cyanosed and extremely tired by the tugging for air.

In spite of the removal and cleansing of the inner tube and the removal, cleansing and replacing of the outer tube; the removal of both tubes and the dilatation of the wound; the use of the catheter through the wound, and the introduction of a feather, and later a pair of properly-curved forceps, — notwithstanding all of these ordinary manœuvres for the relief of obstruction below the tracheotomy wound, no relief was afforded. The child was fast losing strength, and was becoming rapidly asphyxiated. It then seemed necessary to resort to a very radical procedure. Having at hand a dull wire intra-uterine curette, this was introduced into the wound, gently carried to the bifurcation of the trachea, and all sides of the trachea — its whole circumference — systematically and thoroughly curetted. As the curetting continued, pieces of membrane, one of which made a complete cast of the circumference of the trachea, were withdrawn through the wound. The hæmorrhage was slight. The relief to the dyspnœa was immediate.

The tube was replaced; and the boy made an uninterrupted recovery. One or two pieces of membrane came away the following day.

Two years have elapsed since the tracheotomy and curetting of the trachea. The boy is well and strong.

This case is recorded to emphasize the importance of systematic curetting of the trachea for obstruction by diphtheritic exudation. The manœuvre was suggested in a conversation with Dr. Wheeler, of Chelsea, Mass., regarding a case which he had likewise curetted. A careful search of medical literature fails to find a similar case recorded.

In the case in hand the diphtheritic inflammation was probably quiescent. The product of that inflammation was separating from the walls of the trachea. Resolution had begun. It was an opportune time to curette.

No general rule can be deduced from a single instance, but it would seem wise to resort to thorough curetting, if, after tracheotomy, dyspnœa increased in spite of all the ordinary procedures, and if the patient is in good general condition.

Intubation would have been of little aid in this instance.

It has been my experience that these cases operated on early in the course of the disease and when the laryngeal symptoms are slight, even though progressive, do better than the cases operated on when the child is exhausted by difficult breathing and by sepsis.

HINC ILLÆ LACHRYMÆ.

BY DAVID COGGIN, M.D., SALEM, MASS.

TEAR-PASSAGES that are by no means thoroughfares are, as is well known, frequently encountered in our latitude and especially during cold weather. It is likely that more females than males seek advice because of this trouble — whose victims range from infancy to age.

When seen early, the epiphora ordinarily yields to treatment, as by dropping a lotion within the conjuntival sac (such as acid zinci sulph. 0.10, acid boric. 0.50, aqua menth. p. 10.0, aqua camph. 20.0).

Naturally, if the sac is distended, its contents should be squeezed out before using the lotion. Large shade glasses worn out of doors afford relief in some instances.

Rarely the catarrhal trouble is located at the inferior extremity of the nasal duct, and it may subside on applying within the naris a solution of Seiler's tablets, or the like.

Frequently the lower punctum is so small as to be barely visible. In such a case, and also when it is somewhat everted, it is often sufficient to dilate it, as well as the canaliculus, with a small conical probe, and then to inject an astringent lotion with a Meyer's syringe (which has a bulbous tip and is therefore less liable to injure the mucous membrane than is Anel's).

If the fluid passes through the corresponding nostril it is most reassuring to the patient. The country practitioner, who is frequently forced to extemporize apparatus, can make blunt the points of a large darning-needle and of a hypodermic syringe and he will thus have instruments that will be of material aid in treating this trouble.

Even if the nasal duct is closed so that no water passes down into the nose, the frequent use of the syringe is ultimately likely to be of benefit.

But in cases of long standing it is ordinarily necessary to incise (somewhat inwards towards the eye) the outer third of the lower canaliculus, and to make two or three vertical cuts through the narrowed portions of the nasal duct with a probe-pointed knife, which has a long, malleable shank, such as Agnew's. Afterwards, the passing of probes is the routine, but by no means always satisfactory, course of treatment.

Some ophthalmic surgeons prefer large probes — three millimetres to four millimetres in diameter.

My usual practice is to use a Bowman 5–6 (having William's olive tip), and bent to form an arc. I pass the probe and immediately withdraw it, in accordance with the advice once given at Moorfields by the late Sir Wm. Bowman, Bart. Cases occasionally occur where a member of the patient's family learns to pass a probe most deftly. Assuredly, the frequent emptying of the sac by pressure and the use of an eye-water are to be preferred alone rather than in connection with harsh probing by whomsoever done.

In acute inflammation of the lachrymal sac (abscess of the tear-passage), on using cocaine and introducing an Anel's probe through the lower canal into the sac, it is often possible by an in-and-out motion, in conjunction with gentle pressure on the distended sac, to evacuate so much pus as to relieve the tension and pain. On applying moist heat for ten minutes every hour, and on repeating the emptying of the sac two or three times, resolution may occur.

Several timid patients have been thus relieved — the last one quite recently. One was a man who declined to have the abscess punctured, and on three occasions, at intervals of, perhaps, as many years, a probable perforation through the skin with a resulting disagreeable fistula of the lachrymal sac was apparently avoided by performing this little manœuvre.

In chronic dacryocystitis with great distension of the sac-cavity, so an unsightly tumor was a cause of annoyance to the patient, after opening and appropriately treating the passage to the nose, ordinary contractile collodium (U. S. P.) was painted on the external surface of the tumor, renewing it every day or two, till the swelling had quite disappeared and the capacity of the sac had been restored to its former limits, while the epiphora was no longer present.

It has never been my fortune to either apply caustics to cause obliteration of the sac, or to excise it.

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.

LOCAL ANÆSTHESIA.

VON HACKER[1] has published his results relating to the use of cocaine and æthyl-chloride for purposes of local anæsthesia. The preparation of cocaine found most satisfactory was:

R	Cocaine	0.1
	Sodii Chloride	2.00
	Aquæ	100.00

Of this solution 10 grammes, the amount usually used, contains 0.01 gramme of cocaine. The solution should be injected into and under the skin so as to create an œdematous-like condition. Distinct wheals are formed. When so used, von Hacker found that minor surgical operations were absolutely without pain. The method is not suitable for extended operations. The chloride of æthyl spray was also found to be quite efficient for small operations and quite simple in application.

[1] Wien. Klin. Woch., 1893, vi, 10.

SURGICAL SIGNIFICANCE OF DUST.

The interesting editorial of Warbosse,[2] in which he describes at length the important work of Hægler,[3] deserves a careful perusal. The article is too long to report in detail. The results reported have an important relation to operative work and wound treatment. The work seems to show that the important factor in atmospheric infection is dust; that this contains the germs; that air in a room unagitated contains few germs; that the atmosphere of an unclean room in a state of rest is freer from germs than that of a comparatively clean room in a state of commotion. Dry dressing and dry treatment of wounds allow a greater distribution of germs into the atmosphere than moist ones. It is true that the danger of infection from air containing pathogenic microbes is much less than from other sources. Still, it is of enough importance to be considered when one is striving for complete asepsis. Hence attention should be paid to diminishing or eliminating the harmful effects of dust. Also to prevent the conversion of infectious material into dust, as by the dessication of pus, agitation of dry discarded dressings, or in similar ways. The methods proposed for the removal as far as possible of this liability of infection during operative work or the dressing of wounds were to avoid agitation of the air at such times or to precipitate all dust by charging the atmosphere with moisture, so that during its precipitation the dust is carried down with it and the air is thus cleared as during a shower. The moist surface thus produced holds such precipitated dust fast for a time, and prevents its renewed circulation by air currents. The article is an important one, and is a valuable contribution to the knowledge of asepsis.

SALINE INFUSION.

The value of this method of treatment of severe surgical shock as well as for cases of severe hæmorrhage, with or without strychnia, is emphasized by Dr. Sternberger,[4] who reports two severe cases of collapse, which were apparently rescued by the infusion. Three pints were syphoned into the median cephalic vein. In one case the infusion was repeated at the end of fifteen hours. The six-tenths-per-cent. solution was used at a temperature of 117° and 118° F. Dr. Sternberger considers the high temperature of the infusion and the after-use of strychnia important factors to his success; also the amount of infusion (three pints).

The saline solution can also be used subcutaneously for the same purpose, or by enema. The former method has recently been described by Dr. Farrar Cobb.[5] The apparatus used was a metal aspirator trocar with stop-cock and side entrance connected by rubber tube with a glass or hard rubber funnel. The trocar is sterilized by heat, the tube or funnel with

[2] Annals of Surgery, 1893, vol. xvii, 464.
[3] Bertrage z. Klin. Chir., Bd. ix, Heft. 3.
[4] New York Medical Record, 1893, vol. xliii, p. 5.
[5] Boston Medical and Surgical Journal, 1893, vol. cxxix, 325.

sublimate solution (1 to 1000). The sterilized salt solution was kept at a strength of twelve parts in one thousand, so that the addition of an equal amount of boiling water makes a solution of the strength usually used (6 to 1000) and of the right temperature for instant use. This arrangement is good for emergency work. The preparation is simple and rapid. The solution is syphoned through the trocar into the subcutaneous tissue of the inguinal and femoral regions. It can be done more rapidly than the intravenous method. The reported results were satisfactory.

Another method which has attracted little attention, but which has given striking results, is that of arterial infusion. This has recently been perfected by Dawbarn,[6] who records the resuscitation of several almost moribund patients. The solution at a temperature of, at least, 120° F. is syringed into the femoral artery through a Davidson syringe and a hypodermic needle.

NEURECTOMY IN SPASMODIC TORTICOLLIS.

Gardner and Giles,[7] in a paper on neurectomy in spasmodic torticollis and retrocollic spasm, report two cases, one of spasmodic torticollis, the other of retrocollic spasm without torticollis, which were treated by exposure and partial resection of both spinal accessory nerves and subsequent division of the posterior branches of the second and third cervical nerves. This treatment was completely successful in the first case, nearly five years having elapsed since the last operation; in the second case it was followed by ceasation of all bad symptoms, save some trifling spasmodic movements of the deep rotators of the left side, which it is anticipated will be completely cured by another operation. Gardner, who had charge of these cases, claims precedence over Keen with regard to section of portions of the posterior branches of the second and third cervical nerves, having performed this operation a few months before it had independently been thought out and practised by the latter surgeon. The following general considerations regarding the operation are deemed advisable to observe in the surgical treatment of these distressing cases:

(1) The operation on the spinal accessory nerve should precede, by a considerable interval, the difficult operation on the cervical nerves for two reasons: (*a*) because the milder operation has been known to be successful, even in cases in which spasmodic movements occurred in muscles not supplied by the spinal accessory nerve; (*b*) because the trapezius being completely paralyzed after neurectomy of the spinal accessory, time is also given for a more complete study of the muscles involved in the spasm, and in this way unnecessary operations with their risks and resulting scars may be avoided. (2) If the sterno-mastoid is involved in the spasm, the spinal accessory nerve should be exposed in front of this muscle, but if the trapezius alone is involved the nerve should be sought for by an incision along the posterior border. In neither case need the incision, if properly placed, exceed the length of two inches. (3) No injury to the patient will arise from the paralysis of muscle as to function. From an æsthetic point of view it is of advantage that the extent of the spasm should necessitate an operation on both sides, as thereby dissimilarity in the appearance of the right and left muscles is avoided. (4) The neuralgia which follows section of the nerves is especially felt in the shoulders, and appears to be of very fleeting character. (5) The spinal accessory nerves may be both cut down upon at the same operation, as the whole procedure can be performed with precision in about fifteen minutes. In the case of the posterior cervical nerves the two sides should never be attacked at the same stage, because the duration of the double operation might seriously increase the risk to the patient, or the onset of dangerous symptoms might necessitate the second operation being left unfinished.

A NEW AND SAFE METHOD OF CUTTING ŒSOPHAGEAL STRICTURES.

This is described by Dr. Robert Abbe,[8] and is claimed by him to have been successfully used, and to be superior to the "Billroth" method (external œsophagotomy and division of stricture by incision, for high strictures only), or internal œsophagotomy, an operation always "in the dark" and at times very dangerous. It is especially indicated in cases of dense fibrous strictures such as result from lesions due to caustics. For "impermeable" or very tight strictures, gastrostomy through the oblique incision, parallel to the costal arch is first performed. The œsophageal orifice is explored with the finger and a small conical (gum elastic) bougie guided into it with the finger. Dilate, if it can be done without force, by the gradual method. If unyielding, carry a heavy braided silk ligature by a small bougie up the œsophagus until it can be drawn out through the mouth. The largest bougie which the stricture will admit is now introduced so as to put it on the stretch. The string is now drawn upward by the fingers introduced well back in the mouth, and the bougie is felt to advance as the tense string wears away the tense stricture. The operator see-saws the string up and down, while his assistant presses the bougie gently through the stricture. Larger bougies are passed in the same way as the stricture yields. When the desired dilatation is attained, a rubber-tube of corresponding diameter is drawn up into the œsophagus till one end is above the seat of the stricture and the other remains outside the abdominal wound. A smaller tube is also introduced into the stomach for nourishment. The patient can thus swallow water to clean the mouth, or saliva, without injury to the wounded surface. The tube also keeps up dilatation. It is removed on the second or third day and the subsequent dilatation accomplished through the mouth by bougies. The gastric fistula is subsequently closed as soon as the condition of the patient will permit the operation, in one case eight weeks after the primary dilatation.

INTRA-ABDOMINAL ADHESIONS THE CAUSE OF SEVERE PERSISTENT COLIC.

Dr. Carl Lauenstein reports ten cases. The diagnosis was confirmed by operation.[9] The cases are reported in detail. In all the adherent surfaces were dissected apart. Bands and strands were extirpated. The results were nine permanent cures and one death. The statements of Lauenstein relating to diagnosis are as important as those describing the treatment. The diagnosis is difficult and is made only after a careful study of the case and exclusion of other causes. The noticeable facts thus obtained are the absence of febrile

[6] New York Medical Record, 1892, vol. xli.
[7] Reprint from Australian Medical Journal, 1893; British Medical Journal, August 19, 1893, p. 30.
[8] New York Medical Record, 1893, vol. 43, p. 225.
[9] Arch. f. Klin. Chir., 1893, xlv, 121.

disturbance. The appearance of the patient as if a severe affection were present. The localization of pain at definite points in the abdomen. Unfortunately, however, there are cases in which a probable diagnosis is impossible and when an explorative laparotomy is the only solution of the problem.

ASEPSIS IN LAPAROTOMY.

Minnow, at the Gynecological Klinic of Professor Fritsch, of Breslau, has made an investigation to ascertain if a perfect method of asepsis was possible or practical.[10]

The operative work was done in rooms that were especially reserved for this class of cases. The same rule was carried out with reference to equipment, that is, tables, operating clothes, instruments, aprons, etc. Sterilization was by steam, at 100° C., for one hour immediately before operating. The water was boiled for one hour. Instruments were cleansed with a two-per-cent. carbolic solution. Hands (and patient) were subjected to mechanical cleaning in sublimate solution (1 to 1000) for five minutes, and then bathed in sterilized water. The silk ligatures were sterilized by steam for one hour. No antiseptic solution was used in the abdomen. The dressing was sterilized gauze and cotton.

The contents of the abdomen were tested bacteriologically, before and after the operation in each case. He thus investigated thirty-one cases where the abdomen was opened. Of twenty-eight cases examined at the end of an operation, micro-organisms were identified in twenty. The remaining eight showed no trace of bacteria. When the examination was made as soon as the peritoneum was opened, micro-organisms were demonstrated only thrice in twenty-three cases. The inference is that entrance of germs was during the operation from without and that the present aseptic method does not preserve the abdominal cavity from the entrance of germs in a bacteriological sense. But it was also found, that, although the above conditions were present, septic infection was seen only in one case, a patient septicæmic before the operation. In eleven of fifteen cases where bacteria were found, marked elevation of temperature was observed. Examination of the air in the vicinity of the open abdomen showed the same micro-organism as the cultures from the abdomen. Hence, although of a so-called non-pathogenic nature, these bacteria were apparently the cause of the temperature elevation, 38° C., which in some cases lasted several days. Most of the patients recovered without this febrile reaction where the abdominal exposure was of short duration. Other facts reported are that it is very difficult to furnish an operating-room with air free from bacteria. That the peritoneal cavity does not contain germs which can be cultivated by the gelatine and agar-agar method. That adherent Fallopian tubes or cysts in most cases, even when their contents are purulent, show no living micro-organisms. That the abdominal surgeon has to deal in a large number of cases with non-infected tissue and that asepsis, although not perfect, is enough for practical results. When septic infection exists in uterine cases an operation should be preceded by uterine irrigation followed by an iodoform gauze tampon. That infected tissues should be removed by Pacquelin cautery rather than with the scalpel or scissors.

[10] Centbl. f. Gynekologie, 1892.

THE ACCIDENTS WHICH MAY FOLLOW REMOVAL OF PORTIONS OF THE OMENTUM IN OPERATIONS FOR HERNIA.

W. T. Bull,[11] has recorded a number of interesting accidents under operations for hernia, and he states that in dealing with the omentum the following dangers are to be borne in mind:

"(1) Bleeding from inefficient ligature.

"(2) Damage to neighboring intestine from faulty application of the ligature.

"(3) Inflammation and abscess of the omental stump.

"These dangers should make the management of the omentum the subject of special care. Any threatened inflammation should be met with prompt incision so soon as symptoms are urgent."

THE RADICAL CURE OF HERNIA BY BONE PLATES.

Thiriar,[12] has operated upon twenty-five cases of hernia by interposing a decalcified bone plate somewhat larger than the internal ring between the peritoneum, which has been dissected up from the inner surface around the stump of the previously ligated hernial sac, and the abdominal parietes. This plate is secured in position by sutures so adjusted as to approximate the layers of the abdominal wall. He uses bones from a beef. The bones are denuded of periosteum and placed in a ten-per-cent. solution of hydrochloric acid. They are sufficiently soft when they are pliable under water. These pieces of bone are then placed in a 1–1000 bichloride solution, and finally preserved in an ethereal solution of iodoform, but before use they have to be dehydrated in ninety-five per cent. of alcohol.

(To be continued.)

[11] Annals of Surgery, March, 1893.
[12] Le Merc. Med., 1893.

Reports of Societies.

NEW YORK STATE MEDICAL ASSOCIATION.

TENTH ANNUAL MEETING, NEW YORK, OCTOBER 9, 10, 11 AND 12, 1893.

INTRODUCTORY SESSION.

MONDAY EVENING, OCTOBER 9TH.

THE meeting was opened by an Address of Welcome by the Chairman of the Committee of Arrangements; following this came an address by the President, Dr. S. B. Wylie McLeod. He naturally took a retrospective glance at the work of the past ten years, and alluded to the growth of the Association and the variety of the scientific contributions. Although the Association was only organized on February 4, 1884, it now has a membership of eight hundred, and its library has increased to nine thousand volumes.

Dr. John Shrady also delivered an address in which he went over much the same ground, only more in detail. The address by Dr. Gouley on "The Nosology of Disease"; the one on "Pathology," by Dr. E. G. Janeway;" the paper by Dr. Van Zandt, on "Commercial Prescriptions;" the discussion on "The New Hypnotics;" the discussion on "Peritonitis;" and that on "Pneumonia," were mentioned as having been particularly interesting and profitable.

A special feature had been the "prepared" discus-

sions, a plan first devised and put in practice by the British Medical Association, and now very generally adopted by our more progressive medical societies. It had saved much time, and added greatly to the scientific work of the Association. The first discussion of this kind was on "Pneumonia," and was suggested by Dr. Flint. The speaker also referred to a contribution in which is given the history of what is claimed to be the first case of nitrous oxide anæsthesia. The date is fixed as November 25, 1821, and it is said that the subject was a young man who surreptitiously inhaled a large quantity of the gas from a tank placed in a room adjoining one in which an exhibition was being given of its peculiar properties.

Among the more recent papers, was a practical paper by Dr. James G. Porteous, of Dutchess County, entitled "Winter Cholera." It describes the prevalence of choleraic diarrhœa in Poughkeepsie, due, as the author very clearly shows, to contamination of the river water which is supplied to the town. With this paper the writer presented some very interesting researches on drinking water, made by the bacteriologist, Dr. E. K. Dunham, of New York.

FIRST DAY (TUESDAY). — MORNING SESSION.

Dr. James G. Porteous, of Dutchess County, read a paper on the

PREVENTION OF DISEASE,

in which he referred particularly to the many ways in which tuberculosis is spread broadcast over the land, and of the simple measures by which it could be very materially restricted. He showed a printed card which he gives to his consumptive patients, and which gives them directions how best to avoid carrying the infection to others, and at the same time, reminds their friends how they can best assist in this good work. For instance, it advises consumptives to avoid spitting on the floor or in public vehicles, to have separate table utensils and linen, to sleep in a separate bed and to abstain from kissing people. The well persons are informed that this disease is principally communicated by the swallowing of the germs, by inhaling them and by their introduction into wounds. They are cautioned not to eat or sleep with consumptives, or to use clothing belonging to such patients, and especially to be very careful not to put in their mouths such small articles as coins which have been handled by tuberculous patients. As a precautionary measure, they are advised not to kiss on the lips *any one* who has a cough.

Dr. E. D. Ferguson, of Rensselaer County, read

AN ADDITIONAL NOTE ON NEPHROTOMY AND NEPHRECTOMY,

in which he stated that many of these cases are not originally tubercular. He prefers a free incision and packing of the wound, to the use of a drainage-tube.

Dr. John Cronyn, of Erie County, in discussing the paper, illustrated the difficulties of diagnosis by relating the history of a lady who, for four years, had symptoms referable to disease of only one kidney, yet the post-mortem examination showed that both kidneys contained calculi. He expressed the hope that some of these difficulties would vanish under the more general and expert use of the cystoscope or some similar mode of examination.

Dr. Ferguson said that many of these cases of renal disease begin at the inferior portion of the genito-urinary tract and spread upwards. Although frequently not primarily tubercular, they are quite liable to become infected secondarily. He disapproved of the use of the cystoscope and of ureteral catheterization on account of their liability to aggravate the disease.

Dr. Gouley coincided in this view, and stated that not only was an exploratory operation comparatively safe, and much more satisfactory in its results, but it afforded an opportunity, in the event of the diagnosis being confirmed, to immediately perform nephrotomy. Nephrectomy should not be resorted to except as a subsequent measure.

Dr. Nelson J. North, of Kings County, in a paper on

THE TREATMENT OF EPITHELIOMA AND THE CHANCROID ULCERS BY TOPICAL APPLICATION,

described the favorable results he had attained by the local application of concentrated lactic acid to cases of epithelioma and uterine carcinoma. The treatment was particularly applicable to inoperable cases. This acid does not produce an eschar, but seems to destroy the vitality of the abnormal cells. It has little or no action on normal tissue. When applied to a carcinoma, the tumor becomes brownish, shrinks up and discharges after a short time a thin, brownish fluid.

AFTERNOON SESSION.

Dr. N. P. Dandridge, of Cincinnati, read a paper on

THE SURGICAL TREATMENT OF PULMONARY CAVITIES.

This treatment is applicable to cases of abscess of the lung, gangrene of the lung, hydatid cyst and to tubercular or bronchiectatic cavities. Of course, in most cases of bronchiectasis, the cavities are so numerous that surgical treatment cannot be employed, but when there is one cavity much larger than the rest, and the secretion is quite abundant, it is proper to look for a good result from surgical interference, if the cavity is sufficiently accessible. Tubercular cavities are usually still more favorable, as they are ordinarily more superficial. The following case was cited as an illustration of the type considered by the author most favorable for surgical treatment: The patient was a man, twenty-nine years of age, having a decided phthisical family history. He had a constant dry cough, a slight fever and severe pain in the right side of the thorax. The cavity having been located, it was exposed by incision and resection of three inches of the eighth and ninth ribs in the axillary line. The cavity was very superficial and its walls were rough, as is commonly seen in phthisical cavities. About half a pint of sanguineous fluid was removed, the cavity washed out with sterilized boric-acid solution and a drainage-tube inserted. This patient improved steadily and rapidly after this operation. An operation of this kind is not infrequently undertaken under the supposition that the case is one of localized empyema. The operation when performed in properly selected cases is easy and comparatively free from danger.

In gangrene, abscess and hydatids of the lung, modern opinion favors incision and drainage of the cavities, when these can be accurately located and easily reached. The cavities should be packed with iodoform gauze after incision.

It goes without saying that the danger of the operation is greatly augmented by the absence of protecting

adhesions between the pleura and thoracic wall. A large aspirating needle is used in locating the cavity, and it then serves as a guide for the knife. It should be remembered that the quantity of material expectorated bears no constant relation to the size of the cavity.

DISCUSSION ON LESIONS OF THE PLEURA.

This was one of the "prepared" discussions already alluded to. It was opened by DR. JOHN SHRADY, of New York County, who propounded the following questions:

Question 1. — What are the factors of pleurisy? Its forms and contributive conditions? What are the pathological changes in a case of progressive pleurisy ending in recovery?

Question 2. — What are the points of differential diagnosis in pleurisy and other affections of the chest?

Question 3. — What is the treatment of empyema, with relative value of aspiration, rib-resection and free opening with tube drainage?

Dr. Shrady looked upon cold and traumatism as the chief etiological factors, and he said that the fact that a given case was due to traumatism would be generally revealed by the withdrawal with the aspirator of bloody fluid. The key to the diagnosis of pleurisy with effusion is the shifting line of dulness obtained by percussion over the upper part of the thorax, the patient's position being changed from time to time during the examination. Tubercular pleurisy is commonly revealed by the presence of peritoneal or pericardial complications.

Adopting Osler's recommendations, the treatment of pleurisy with serous effusion may be said to be the adoption of measures calculated to limit the exudation at the beginning, allay pain, relax the bowels and reduce the fever; in the later stages, the treatment must be directed to promoting the absorption of the effusion. Aspiration should be resorted to, when there is sufficient fluid to cause intermittent orthopnœa, when it half fills the pleural cavity, when it shows no sign of being absorbed after a month and always when it becomes purulent. Aspiration is best performed, when circumstances permit of selection, in the sixth intercostal space, in the axillary line and close to the upper border of the seventh rib.

Empyema may be secondary to such diseases as pyæmia and puerperal septicæmia; in adults, however, it is most commonly associated with pulmonary tuberculosis. The fact that symptoms of suppuration are not evident until some of the pus has been absorbed, should lead one to be particularly alert to detect this change in the character of the pleuritic effusion. If a simple incision does not admit of free drainage, it is advisable to resect a portion of the lower rib, but it should be remembered that this does not necessarily mean that the entire width should be excised. A rubber drainage-tube, preferably without lateral openings, should be inserted and sutured to the skin. In conclusion, the writer said: "Bowditch, of Boston, after all did not leave us much to learn; he was first rational, then bold, then lucky."

DR. WILLIAM MCCOLLOM, of Kings County, read a paper in reply to the first question propounded. He is a firm believer in the theory that the streptococcus, staphyloccus and pneumococcus have an important etiological relation to pleurisy, and he explains the various discrepancies which have arisen in the various researches on this point, by supposing that the investigators have made their examinations for these organisms at different stages of the disease. Again, the pneumococcus is a short-lived micro-organism and hence it does not follow because it was not found in the exudate, that it had not been present at an earlier stage than at which the examination was made.

DR. J. BLAKE WHITE, of New York County, replied to the second question. He said that localized pain cannot be considered as characteristic of pleurisy, although many times its peculiar character may aid us in the diagnosis. The pain may be misleading by being referred by the patient to another part, as the abdomen. Nor can dyspnœa by itself be relied on as a characteristic of pleurisy. Where the pleurisy is of tubercular origin, there is usually, first, cough, then pain in the side, and lastly, dyspnœa, whereas in other pleurisies, there is usually first pain in the side, secondly, dyspnœa and then cough. The tendency to clear the throat frequently when there is no lesion in the throat is strongly indicative of pleuritic adhesions. A short cough points to these adhesions being high up in the chest, and a more prolonged cough, to adhesions lower down. The speaker asserted that no investigation yet made had proved conclusively that pleuritis is due to microbes. The presence of such microbes in pleuritic exudations by no means establishes their causal relation. Tuberculosis affords the strongest argument in favor of the microbic theory, and yet he is a poor diagnostician who waits for the microscope to make the disgnosis in these cases.

DR. J. G. TRUAX, of New York County, also discussed the second question. He said that the pleuritic friction râle is quite localized, frequently changes its position, is often heard within a few hours after the onset of the disease, and may be felt as well as heard. It may be mistaken by the tyro for bronchial crepitation.

DR. CHARLES A. LEALE, of New York County, answered the third question. As an illustration of what may be accomplished in cases of empyema, without resort to operation, if circumstances are favorable, he related the history of a boy, who, after treatment for two years, was practically well, and at the end of five years from the occurrence of the empyema, the lung and pleura were found in normal condition. He said that whenever he heard free incision into the chest advocated, he was reminded of an army officer who came under his observation with a large wound in the thorax. This man begged most piteously to have the opening closed that he might be relieved of his intense and constant suffering.

Incidentally, also the speaker referred to a case in which a robust farmer contracted tuberculosis from his wife, and developed an empyema. Fortunately his health was completely restored by a long residence in Egypt, and the patient was not then willing to believe that he had ever had pulmonary tuberculosis, yet the post-mortem examination showed only too plainly the evidence of his former consumption. Nature had been kind to this man, yet he thought if her beneficent process of repair had been interfered with by an operation on the empyema, it is hardly probable that there would have been the thick, protecting exudation which was found at the post-mortem and which had offered an effectual barrier to the progress of his consumption.

DR. THOMAS H. MANLEY, of New York County,

dropped a bomb into the camp of those who defend aspiration in serous pleurisy by boldly asserting that not one of his cases treated by aspiration had lived more than three years, and his experience with this treatment led him to fully endorse what had been stated by a distinguished French authority regarding the dangers of thoracentesis.

Dr. Cronyn expressed his regret at hearing this declaration from Dr. Manley, for he had long made early and free use of the aspirator in serous pleurisy, and, he was convinced, with the best results. He was not in favor of treating empyema by resecting the ribs, because this practice is totally unnecessary.

He said he had noticed that sometimes certain diseases appeared to be cured by metastasis, and in support of this view he cited a case — one of several similar ones — in which a patient under his care, with pulmonary tuberculosis, was suddenly cured of his tuberculosis by an attack of acute mania.

Dr. Donald McLean, of Detroit, said he had discarded the aspirator except in occasional instances as an aid to diagnosis. His objection to it was, that it was incapable of completely evacuating a cavity. Resection of the ribs is done in obedience to one of the most important and widely-recognized principles of surgery, namely, the establishment and maintenance of free drainage.

Dr. Dandridge also favored resection of the ribs. With regard to aspiration, he said it possessed one decided advantage over an opening into the chest, and that was it maintained a negative pressure in the pleural cavity, which was exceedingly useful in aiding the expansion of the lung. It is a useful method of treatment, therefore, even though it may be necessary subsequently, as it will probably, to resort to incision.

EVENING SESSION.

Dr. Austin Flint, of New York County, read a paper on

FERMENTATIVE DYSPEPSIA.

He said he had yet to see a case that had been benefited by the ordinary preparations and combinations of pepsin and so-called pancreatin, although he did not wish to include in this condemnation, the use of partially digested or peptonized foods. Digestion is one of the most complex of the physiological processes, and even now is but very imperfectly understood. It is well known that the combined, as well as the successive action of the digestive fluids is essential for normal digestion. The distress after eating, experienced by many dyspeptics, is not necessarily due to a deficiency of pepsin; it is rather brought on by the accumulation of gases in the stomach, as a result of the fermentation of the food. This fermentation he believed was due to the action of micro-organisms. For proper intestinal digestion, the so-called pancreatin, which is really a combination of several substances secreted by the pancreas, requires the assistance of the bile and of the intestinal juices which are of unknown composition. Fermentation usually begins in the stomach, and is continued in the intestine. When it originates in the intestine, there is usually a deficiency of bile, and there is apt to be more or less diarrhœa present. When the digestive discomfort begins two or three hours after taking food, and diarrhœa and flatus are present, it is probable that the fermentation is purely intestinal. It is very important to relax the bowels, or at least, to regulate them, and for this purpose he had found Villacabras water very useful. The dose must be carefully adjusted to the individual, and enough given to produce a free movement. It will then be found that the bowels will usually continue to move daily for several days, after which the dose may be repeated. After it has been used in this way for a time, it will often be found that the dose can be diminished rather than increased as is the case with many similar remedies.

The author said that in the treatment of fermentative dyspepsia, he had found his father's well-known practice of giving salicin in ten-grain doses before meals very useful, but in about twenty-five per cent. of the cases it failed. During the past ten months he had been prescribing the subgallate of bismuth in five-grain doses, either before or after meals, and he had only noted two cases during this time in which it had failed. Both of these were very chronic, and had previously resisted a great variety of remedies. He was led to employ the subgallate of bismuth from its reputed success as an intestinal antiseptic in the diarrhœa of children. The medicine is best given in capsules or in tablet form.

Dr. Cronyn thought that in the same class of cases in which Dr. Flint would give the subgallate of bismuth, equally good results would follow the administration of dilute hydrochloric acid, for he believed the condition was primarily due to a deficiency of this acid in the stomach. He called attention to the fact that dyspepsia is often kept up for a long time by a too prolonged adherence to some special diet.

Dr. Henry F. Risch, of King's County, said that it was essential to the successful treatment of fermentative dyspepsia to determine whether the fermentation was due to the hydrocarbons or the nitrogenized substances. If due to the decomposition of hydrocarbons, the product of the fermentation will be carbonic acid gas, but if to the latter, it may be detected by the foul odor imparted to the patient's breath. Having ascertained which class of food-stuffs is the offender, this must be excluded from the dietary. Until this is done, there is but little use in resorting to medicines in a haphazard way.

Dr. C. A. Leale said that lavage of the stomach and bowels had been extensively practiced on the infants brought during the last summer to St. John's Guild Hospital, suffering with diarrhœa. Having cleaned the alimentary canal in this way, the infants were given only sterilized milk, and, as might be expected, all the symptoms promptly improved. The tris-nitrate of bismuth and Fowler's solution had also been found useful in restoring the digestive tract to its normal state.

Dr. John A. Wyeth, of New York County, read a paper entitled

BLOODLESS AMPUTATION AT THE HIP-JOINT: REPORT OF CASES OPERATED ON BY THE AUTHOR'S METHOD.

This method was introduced by him to the profession in 1890. He presented brief histories of thirty-nine cases in which this method of amputation at the hip had been adopted, and the fact that this series included a great many operators of widely different degrees of experience and skill only served to enhance the value of these statistics. Sixteen of the amputations were done for sarcoma, with two deaths, or 12.5

per cent. mortality; eighteen were for inflammatory disease of bone, with three deaths, or 16.6 per cent. mortality; four cases were for severe injuries, with four deaths, or 100 per cent. mortality; and one case was for a nerve lesion; recovery. In other words, thirty-five cases were for disease, and of these, five died, or 14 per cent.; the four cases of injury all died.

(To be continued.)

MASSACHUSETTS MEDICO-LEGAL SOCIETY.

F. W. DRAPER, M.D., SECRETARY.

REGULAR Meeting, October 4, 1893, the Vice-President, DR. S. W. ABBOTT, in the chair, and twenty members present.

PROF. WILLIAM T. COUNCILMAN read a paper on

THE PATHOLOGICAL CONDITIONS OF THE HEART WHICH RESULT IN SUDDEN DEATH.[1]

The reading of the paper was followed by a demonstration of anatomical specimens illustrating thrombosis, hypertrophy with dilatation, cardiac rupture and aneurism in the wall of the left ventricle.

DR. HARTWELL, of Ayer, said he desired to express his thanks to the writer of the paper for setting forth so clearly various points relative to cardiac emergencies which had been obscure. Physicians at a distance from populous centres had comparatively rare opportunities to study these cases and still rarer opportunities to observe the anatomical appearances. It was, therefore, very helpful to hear such a clear and instructive paper on a subject which was especially interesting to medical examiners. He mentioned two cases of rupture of the heart, both in old people and both involving the left ventricle.

DR. SWAN, of Cambridge, reported the case of a man, forty years old, who fell dead at his work-bench. The autopsy found the cause of death to be hæmorrhage into the pericardium through a rent in the wall of an aneurism of the aorta, just above the valves.

DR. HOUGH, of New Bedford, had seen a case of rupture of an aortic aneurism with death in less than a minute.

DR. SEYMOUR, of Northampton, presented a communication relative to a case of sudden death in which his right to make an inspection of the body which had been found dead in bed was disputed by a physician called in to the case, the reason for the objection being that he, the latter, was of the opinion that the death was caused, probably, by heart disease and not by violence. The county commissioners had supported this view of the case and had disallowed Dr. Seymour's account for his medical examiner service in investigating the circumstances of the death according to the requirements of the statutes. Dr. Seymour argued that it was only by "personal inquiry," and sometimes by "further examination," when personal inquiry failed to solve the doubt, that the element of violence could be excluded in such instances and insisted that the medical examiner was the proper one to make the investigation.

The CHAIRMAN spoke of the importance of the subject as a practical question and said that it was obvious that in a death under such circumstances the element of violence, or its absence, could not be determined accurately except by such methods as the law required in the statute relating to inquests.

[1] See page 457 of the Journal.

The matter was farther discussed by Drs. Hough, Dolan, Bronson and Presbrey, the prevailing sentiment favoring the view that the cases of persons "found dead" were proper cases for a medical examiner's investigation, although at the time of the finding a suspicion of violence was not yet entertained and had not been expressed.

DR. DOLAN, of Fall River, read a paper on the

RIGHTS AND DUTIES OF MEDICAL EXAMINERS IN THE INVESTIGATION OF CERTAIN CASES OF HOMICIDE.

He defined the methods which he believed should be taken to secure evidence, the medical examiner's control of premises where a homicide has occurred, the notes which he should take concerning the temperature of the dead body, its position, color and surroundings; its internal condition as shown by autopsy with especial attention to the contents of the stomach. The value of photography in delineating the attitude and external appearance of the body was mentioned. The reader justified the decapitation of the body and the preservation of the injured parts of the skull, if the case were important and the head were the part attacked in the killing. The correct demeanor of the medical examiner on the witness stand was outlined.

DR. PRESBREY, of Taunton, said he thought the use of the ordinary clinical thermometer for determining the temperature of dead bodies was of limited value, since these instruments register down to 94° only and are not available for temperatures below that.

DR. DOLAN replied that where two homicides, nearly coincident, are to be studied, accurate determination of the body-heat in the two cases is important in deciding the question of the priority of death.

SUFFOLK DISTRICT MEDICAL SOCIETY.

HENRY JACKSON, M.D., SECRETARY.

REPORT OF THE COMMITTEE APPOINTED TO SECURE FROM THE LEGISLATURE "IMPROVED SANITARY LEGISLATION."

AT a meeting of the Clinical Section held October 18th, Dr. Cheever, as chairman of the committee, made his report. This committee was appointed November 16, 1892, by Dr. F. C. Shattuck, chairman of the Section, in accordance with the recommendation of a previous committee to present Propositions 3 and and 4 of their report[1] in proper form to the Legislature. These propositions refer to sanitary legislation in the State of Massachusetts.

BOSTON, June, 1893.

The Committee appointed by the Section on Clinical Medicine of the Suffolk District Medical Society, "to secure from the Legislature improved Sanitary legislation," respectfully report, that they have failed to obtain the sanction of the General Court to two of the measures proposed, and ask to be discharged.

Your Committee, after numerous meetings, to which members of the State and City Boards of Health were invited, formulated three bills (here appended) which were kindly prepared by Mr. Ernst, as counsel.

No. 401,[2] provides for advisory medical inspection, throughout the State.

No. 402, provides for the registration of vital statistics under supervision of the State Board of Health.

[1] See Boston Medical and Surgical Journal, December 22, 1892, p. 610.

[2] Boston Medical and Surgical Journal, vol. cxxviii, page 528.

No. 403 makes obligatory a return of all contagious cases to the State Board of Health, by local boards of health.

No. 403, alone, was passed.

Your Committee received the support of the State and City Health Boards, and of the Mayor of Boston, also of Mr. Parkman in the Senate and Mr. George von L. Meyer in the House.

Your Committee had a hearing before the Joint Committee on Public Health of the Legislature. At this hearing, your Chairman made an extended argument for the bills, and was supported by the following gentlemen, who attended and spoke at length, in favor of the bills, at his invitation: Rev. Lyman Clark, Andover, N. H.; Gen. Francis H. Walker; President Dr. James C. White; Dr. C. F. Folsom; Dr. Harvey, of Westborough; Prof. D. R. Dewey, Institute of Technology; Rev. S. W. Dike, of Newton; Prof. W. T. Sedgwick, Institute of Technology.

The Joint Committee of the Legislature on Public Health reported favorably Bill No. 403, and allowed the rest to lapse by default. The subject being again called up in the Legislature by Senator Parkman and Representative Meyer, was recommitted to the Joint Committee on Health, to give another hearing. At this hearing, Drs. Walcott and Cheever addressed the Committee.

This Committee then reported *favorably*, and the Bill 401 was referred to the Committee on Finance. This Committee (Mr. Rideout, of Cambridge, Chairman) reported that the bill ought not to pass. The Bill (401) "for the appointment of advisory medical inspectors throughout the State," was rejected in the House, 85 to 36.

Thus was a final quietus given to a measure of the highest sanitary importance.

Respectfully,

DAVID W. CHEEVER,
JAMES C. WHITE,
CHARLES F. FOLSOM,
HAROLD C. ERNST,
HENRY J. BARNES,
} *Committee.*

Dr. Cheever's report was unanimously accepted.

On motion of Dr. Knight, a vote of thanks was passed to the members of the committee for their arduous and painstaking labor. Also to Mr. Geo. A. O. Ernst for his valuable and gratuitous services in drawing up the bills and to the various gentlemen who appeared before the Committee of the Legislature on Public Health to speak in favor of the bill.

Recent Literature.

A Contribution to the Pathology of the Vermiform Appendix. By T. N. KELYNACK, M.D., Pathologist to the Manchester Royal Infirmary, etc. London: H. K. Lewis.

This book is an extensive monograph on the appendix. The first chapter contains the early literature on the anatomy and the diseases of the appendix. This is followed by a description of the various differences in length, position and lumen, with an account of the various fossæ which are to be found in its vicinity. He distinguishes three fossæ in the vicinity of the appendix which are almost constant. (1) The ileo-colic fossa, a peritoneal pouch formed at the angle produced by the junction of the ileum and colon. (2) The ileo-cæcal fossa, situated behind the angle of junction of the ileum and cæcum, extending for a variable distance upward behind the ileo-colic junction and parallel to the ascending colon. This fossa may be divided into two parts by the meso-appendix. (3) The sub-cæcal fossa, situated immediately beneath the cæcum.

A description of the various pathological conditions, with their diagnosis and treatment, follows the anatomical description. In this the literature has been gone over very thoroughly, and a large number of statistics collected. The book is essentially a clinical study, and the pathological description of the conditions met with is poorly done. The description of the normal histology of the appendix is incomplete, and there is no description whatever of the histological characters of the lesions. No mention is made of the blood-vessels or lymphatics of the organ, their relative number, their course and distribution; and we might suppose that these were absent altogether.

The work contains nothing new; and the statistics he has collected add little to those in the exhaustive monograph of Fitz. What we want now is a more careful anatomical study of the lesions of the appendix, the character of the pathological processes, their course and their causes. None of these questions have been considered.

Leçons de Thérapeutique. Par GEORGES HAYEM, Professeur de Thérapeutique et de Matière Médicale à la Faculté de Médecine de Paris, etc. Les Médications. Quatrième et dernière série. Paris: G. Masson. 1893.

The greater part of this volume is devoted to the treatment of the various forms of disease which the author includes under the term dyspepsia; special stress is laid upon the careful methods of diagnosis which Professor Hayem and M. Winter have elaborated. These methods are in advance of those in general use in making a diagnosis of certain conditions of the stomach, and some of them demand a greater familiarity with chemistry than one finds in most practitioners; but the author is, of course, quite correct in considering an accurate diagnosis the first step in the proper treatment of the disease. The treatment of dyspepsia is fully and carefully considered. Diet, the influence of repose and exercise, the care of the skin, the use of purgatives and other medicines are discussed. In short, the diagnosis and treatment in their narrowest and widest sense are well given.

In the latter part of the volume the author considers the treatment of dyspnœa, cough, albuminuria, uræmia, etc., but brings forward nothing especially new. The style of the writer is easy but diffuse; the interest of the book lies chiefly in the field to which he has given much attention, namely, certain diseases of digestion.

A Manual for Boards of Health and Health Officers. By LEWIS BALCH, M.D., Ph.D., Secretary of State Board of Health of New York. Albany, N. Y.: Banks & Brothers. 1893.

Dr. Balch has performed a useful service in presenting in this Manual a digest of the various laws and duties which pertain to local boards of health. In the words of the author the book is "a practical manual for practical men, who desire to do their duty when serving their fellow townsmen as members of boards of health."

While the book has been specially prepared with reference to the duties of public officials acting under the provisions of the Health Code of the State of New York, it also contains much information relative to nuisances, the management of contagious diseases, vital statistics and other sanitary matters, which give it a more than local interest, and will make it generally useful as a hand-book for local health officials.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, NOVEMBER 9, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

THE WATER-SUPPLY OF LONDON.

IN last week's issue of the JOURNAL a brief notice of the water-supply of London was presented; but the increasing needs of this rapidly growing metropolis are now so prominent, and in some measure so closely resemble those of our own cities and of all other large centres of population with thickly settled surroundings, that we are induced to comment more fully upon the report of the Commissioners, now in our hands.

The Royal Commission appointed in March, 1892, to determine the adequacy of the present sources of water-supply of London, has made its report, dated September 8, 1893.

This Commission was required to ascertain "whether, taking into consideration the growth of the population of the metropolis, and the districts within the limits of the metropolitan water companies, and also the needs of the localities not supplied by any metropolitan company, but within the water-sheds of the Thames and the Lea, the present sources of supply of these companies are adequate in quantity and quality, and, if inadequate, whether such supply as may be required can be obtained within the water-sheds referred to, having due regard to the claims of the districts outside the metropolis, but within these water-sheds, as will have to be obtained outside the water-sheds of the Thames and the Lea."

The report gives a brief historical sketch of each of the eight water companies supplying London, with estimates of the population of the metropolis for fifty years to come, the probable quantity required for such population, and proposed methods of improving the present supply.

Different estimates of the future population of London are presented, according to the method of making the estimates — the highest estimate for 1931 being about twelve millions and the lowest eight and one-half millions. The present consumption of water amounts to 31.19 gallons per capita daily, of which quantity about twenty per cent. is used for trade and public purposes, leaving about twenty-five gallons per head as the domestic consumption, which is much less than the average in cities of the United States.

The water-supplies of these eight companies are at present filtered through large areas of sand and gravel, covering about one hundred and nine acres of surface. The average depth of the sand in these filter beds is about two and one-fourth feet, and the rate of filtration is about two gallons per square foot per hour.

The filter-beds of the Berlin water-works, which are more carefully and thoroughly prepared, are nearly five feet in depth, and the new filter now in successful operation for purifying the Lawrence water-supply, is also about five feet in depth.

In commenting upon the sanitary phase of the question, the Commission speaks as follows, p. 68:

"Doubtless, these bacteriological questions are not matters concerning which it would become us to make positive and dogmatic assertion, seeing that at present experts in the science of bacteriology are themselves avowedly holding their judgment in suspense. This much, however, we can state without hesitation, that, as regards the diseases in question, which are the only ones known to be disseminated by water, there is no evidence that the water supplied to the consumers in London by the companies is not perfectly wholesome. In coming to this conclusion, we are glad to find ourselves in full accord with the opinion expressed, with equal conviction, by the water commission presided over by the Duke of Richmond, in 1869.

"Before leaving this subject, however, it will be well for us to apply the test of experience to the suggestion mentioned in an earlier paragraph, that a few typhoid bacilli, or even a single one, might possibly pass through the filter-beds and, getting access to a domestic cistern, might there multiply to such an extent as to cause an outbreak of disease, limited to the household using that cistern.

"We shall, we believe, be well within the mark in estimating the number of household cisterns in such use in London to have averaged at least half a million during the past twenty years. Day by day, water for drinking purposes has been drawn from each of these cisterns, and a fresh supply admitted from the mains, so that it is no exaggeration to say, that there have been in the last twenty years thousands of millions of opportunities offered for the suggested catastrophe; and yet not a single instance can be adduced in which it has actually occurred. It may, of course, be said that such a thing may have happened without detection, and it is impossible to prove that such may not have been the case; but, seeing what innumerable opportunities there have been for the occurrence, the absence of a single demonstrated case forms so strong a presumption against its practical possibility that it may, in our opinion, be dismissed from consideration."

In order to preserve the wholesomeness of the water delivered to consumers, and to meet the natural sentiments against drinking water which, although rendered wholesome by purification, has been at some time polluted, the Commission recommends the greatest possi-

ble vigilance over the water-sheds of the Thames and the Lea, to insure thorough treatment of all sewage, before its effluent is admitted to the rivers, by the most efficacious methods that science and experience may dictate, and to enforce the adequate storage and filtration of such water as is abstracted at the in-takes.

The Commission made a careful investigation of all sources of pollution upon the tributaries of the Thames, and found such sources very numerous, and that the Rivers Pollution Prevention Act of 1878 had been a dead letter, so far as its practical enforcement was concerned.

The following are the conclusions of the Commission with reference to the quantity and quality of the water-supply of London:

"We are strongly of opinion that the water, as supplied to the consumer in London, is of a very high standard of excellence and of purity, and that it is suitable in quality for all household purposes. We are well aware that a certain prejudice exists against the use of drinking water derived from the Thames and the Lea, because these rivers are liable to pollution, however perfect the subsequent purification either by natural or artificial means may be; but having regard to the experience of London during the last thirty years, and to the evidence given to us on the subject, we do not believe that any danger exists of the spread of disease by the use of this water, provided that there is adequate storage, and that the water is efficiently filtered before delivery to the consumers.

"With respect to the quantity of water which can be obtained within the water-sheds of the Thames and the Lea, we are of opinion that, if the proposals we have recommended are adopted, a sufficient supply to meet the wants of the metropolis for a long time to come may be found without any prejudice to the claims, or material injury to the interests, of any districts outside the area of Greater London.

"We are of opinion that an average daily supply of forty millions of gallons can be obtained from wells and springs in the chalk of the Lea Valley without affecting any material interests; but that, if that quantity is exceeded, it is probable that the springs and wells in the parts of the valley immediately adjacent to the wells, and all the districts further down the valley may be injuriously affected.

"From wells in the chalk area on the south side of the Thames, in the district of the Kent Company, we are of opinion that a daily average supply of twenty-seven and one-half millions of gallons may be obtained.

"We think it of very great importance that distinct obligations should be laid upon any Company or local authority which is allowed to pump water from the chalk for purposes of public supply, to keep accurate observation of the effect of their operations on the level of the water in the wells from which they pump, and return the results to the water examiner under such regulations as may be framed. The great difficulty which we have had to encounter has been in getting accurate and reliable information as to the actual effect of the operations now carried on. The importance of procuring this will increase each year as the limit of what can be taken from any district with safety is gradually being reached.

"From the River Lea we are of opinion that, with adequate additions to the present system of storage, fifty-two and one-half millions of gallons may be taken daily

"We are of opinion that by the construction of storage reservoirs in the Thames Valley, at no great distance above the intakes of the companies, it will be possible to obtain an average daily supply of three hundred millions of gallons without taking in any objectionable part of the flood-water.

"To our minds one great advantage of such a scheme of storage reservoirs is that it can be carried out progressively to meet the increasing demands for water, and, should the population not grow so rapidly as we have thought it right to contemplate, the extensions may be from time to time deferred as successive decennial enumerations reveal that the ratio of increase is remaining stationary, or even falling.

"From the sources and by the methods we have mentioned a daily supply of 420,000,000 gallons can, in our opinion, be obtained. This is a sufficient quantity to supply thirty-five gallons a head to a population of 12,000,000 persons, which is about three-quarters of a million in excess of what the total population of Greater London together with the outlying parts of Water London will have become in 1931, even if the ratio of increase in the decennial period from 1881 to 1891 is fully maintained.

"We are further of opinion that a large supply of water might be obtained from the chalk area east of the Kent Company's district, in the basin of the Medway, and in the district further east without any risk whatever of damage to that area."

Recent investigations by the State Board of Health of Massachusetts would seem to indicate that the multiplication of typhoid bacilli in household water-cisterns is even less probable than the language of the Parliamentary Commission would appear to imply.

The following experiment[1] conducted by Mr. Mills, at Lawrence, is applicable, at least, so far as concerns cold-weather conditions.

"To prove whether typhoid-fever germs would survive in the Merrimack River water, when at the low temperature of the month of November, long enough to pass from the Lowell sewers to the service-pipes in Lawrence, a series of experiments was made by the Board by inoculating water from the service-pipes with typhoid-fever germs, and keeping the water in a bottle surrounded by ice, at as near freezing as practicable for a month, and each day taking out one cubic centimetre and determining the number of typhoid germs. The number continually decreased, but some survived twenty-four days.

On the first day there were	6,120 germs.
On the fifth day there were	3,100 "
On the tenth day there were	490 "
On the fifteenth day there were	100 "
On the twentieth day there were	17 "
On the twenty-fifth day there were	0 "

This experiment indicates that typhoid-fever germs from the sewers of Lowell may live in winter to enter the Lawrence reservoir in large numbers; that the numbers will decrease in the reservoir; but still a considerable fraction will live to enter the service-pipes, and that this fraction will decrease as the water proceeds in the pipes across the city."

With the results of modern investigation in view as to the natural filtration of water through sand or gravel,

[1] Twenty-second Annual Report of the State Board of Health of Massachusetts, p. 512. Article on Typhoid Fever in Relation to Water-Supplies.

and with the fact also in view that two of the largest cities in the world (London and Berlin) have, in consequence of the adoption of such methods of filtration, the lowest death-rate from typhoid fever enjoyed by any of the large cities of the world, it is difficult to see how a sanitary journal issued in London can publish such statements as the following, in commenting upon the merits of a patent filter:

"It is now established that water flowing through clean sand passes out precisely as it passes in — with the exception of visible substances — totally unaltered in every respect, sand, in itself, possessing no filtering property whatever."

The same paper, in proclaiming the virtues of a water-softening process, says: "The hardness of water being caused by the lime suspended in it, it is susceptible of softening by a *kind of vaccination* with lime. This is now extensively known; but there is a tendency to overdo the lime, just as some ill-advised medical practitioners overdo human vaccination, with the result in either case that more harm is effected than good."

Such metaphorical mixtures of chemistry and pathology are, undoubtedly, within the province of the advertizer, but are out of place in the pages of reputable journals.

BACTERIOLOGICAL DIAGNOSIS OF DIPHTHERIA.

DR. HERMAN M. BIGGS has just made an interesting report to the Board of Health of the City of New York in regard to thirty-six cases reported as membranous croup in which he has made bacteriological investigations during the past four months. In all the cases examined, the pseudo-membranous deposit was confined almost exclusively to the larynx. In thirty cases the Klebs-Loeffler bacillus was abundantly present. These, therefore, were undoubtedly cases of laryngeal diphtheria. In the remaining six cases no diphtheritic bacilli could be detected, and these he regarded as cases of catarrhal pseudo-membranous inflammation analagous to similar non-diphtheritic inflammations in the pharynx. In five of the laryngeal cases in which the Klebs-Loeffler bacillus was found, cases of pharyngeal diphtheria both preceded and followed within a week in the immediate vicinity of the patient. In three other instances the cases were preceded, and in some instances followed, by cases of true diphtheria. In the remaining fifteen cases in which the diphtheritic bacillus was found pharyngeal diphtheria, so far as known, neither preceded nor followed in the immediate vicinity. None of the six cases in which no Klebs-Loeffler bacillus was met with was followed or preceded by cases of diphtheria. Dr. Biggs concludes his report by stating that during the last four months nearly 84 per cent. of all the cases of so-called membranous croup referred to the Health Department for bacteriological examination, have proved to be true diphtheria.

MEDICAL NOTES.

ILLNESS OF DR. ROSWELL PARK. — Dr. Roswell Park, of Buffalo, is ill at the Buffalo General Hospital, with diphtheria, which he contracted while in attendance upon a patient upon whom he was obliged to operate for diphtheria. It is one more example added to the many cases of physicians who daily expose their lives for the sake of their patients.

YELLOW FEVER. — The number of new cases of yellow fever each day at Brunswick, Ga., is slowly diminishing, and the people are beginning to return, although the Marine-Hospital Service authorities consider it a great mistake for them to do so yet while there is a chance of more warm weather. A few cases have occurred at Jesup, and one at the detention camp near Waynesville.

CHOLERA. — The cholera epidemic abroad has been steadily declining for some time. In Arabia, no cases have been reported from Jeddah for over a month. The quarantine station at El Tor received over 30,000 pilgrims, among whom there were but 132 cases of cholera and 99 deaths. In Russia, cases are still reported in St. Petersburg, Moscow, Tiflis and Baku, and through the provinces, with a slight increase during the last week. In Germany, there has been a small outbreak at Stettin, owing to a contamination of the water-supply at the filtering beds. In Galicia and the various Turkish provinces cases are still rather numerous. Palermo and Leghorn are still infected, and in France, Brest and Nantes are the most seriously affected cities. In Spain, the disease is thoroughly scattered throughout the country, a few cases only occurring in each place.

CONSUMPTION OFFICIALLY DECLARED A COMMUNICABLE DISEASE IN MICHIGAN. — At its meeting of September 30th, the Michigan State Board of Health unanimously decided that consumption is a dangerous, communicable disease, and must be reported by physicians and householders to the several health boards.

A LARGE ANATOMICAL MODEL. — Dr. Nardi, of San Francisco, who was General Grant's physician during his travels abroad, has recently finished one of the largest anatomical models ever made. It is a model of the human heart thirty-five times the actual size.

RECOVERY OF DAMAGES FOR MISCARRIAGE. — The Superior Court of New York City has ruled that when a married woman is so injured through the negligence of another person as to miscarry, her husband can recover damages for the loss of the child. In the case on trial the damage was assessed by the jury at $2,250.

ATTRACTIVE CIGARETTE MATERIAL. — The *Medical Press* says that it has been discovered that all the used cotton-wool and lint of the Lariboisière Hospital in Paris has for years been systematically sold by the servants, as their perquisite, to the makers of cigarette-papers. The practice has been put a stop to.

BOSTON AND NEW ENGLAND.

A Medal Awarded the Boston City Hospital. — A medal has been awarded to the Boston City Hospital for the completeness and excellence of its exhibit at the World's Fair.

Massachusetts Cremation Society. — The retort building of the Massachusetts Cremation Society is approaching its completion and will be ready for use the first of next January. The Society is in a flourishing condition and has recently voted an increase of the capital stock to $50,000 by the addition of 25,000 shares of $10 each.

Children in Factories. — During the last year an effort has been made by the State Police to lessen the number of children employed in factories, with the result that there are now but 253 children under fourteen years of age at work in factories in the whole State, as against 1,656 a year ago.

Tetanus from Frozen Feet. — From December, 1888, to March, 1893, the hospital records of the State Almshouse at Tewksbury, show three cases of tetanus. The disease has in each case been concurrent with frozen feet. Among the nine thousand patients treated in the hospital during this time, no other cases of tetanus have occurred from any cause whatsoever. In two of the cases referred to, the frost-bite was superficial and called for no active surgical interference. The tetanic spasm was treated in one case with chloral; in the other with chloral and hyoscyamus. Both cases proved fatal. In the third, amputation of the foot had been decided upon when the tetanus intervened. The amputation was, however, performed, but without apparent effect on the course or progress of the disease.

NEW YORK.

Mortality. — During the week ending October 28th, the number of deaths reported in the city was 646; which is 56 less than in the preceding week and 58 less than the average of the corresponding weeks for the past five years. This represents an annual death-rate of only 17.62 per thousand of the estimated population, and the number of births reported during the week exceeded the deaths by 355. On October 28th only the following cases of contagious diseases were under treatment at the Riverside Hospital on North Brother Island: — Small-pox, 21; scarlet-fever, 26; diphtheria, 21; measles, 3.

Typhoid Fever at Tarrytown. — An outbreak of typhoid fever having recently occurred at Tarrytown on the Hudson, the village authorities applied to President Wilson of the Board of Health to assist them in detecting its source. Accordingly, he instructed Dr. Biggs, Chief of the Bureau of Bacteriology, to make an expert examination of the water supply, and Dr. Biggs, in connection with the local Water Commissioners, made a thorough survey of the different sources of the water. The supply comes from three wells sunk in a marsh northeast of the village, and several small brooks empty into the marsh from the surrounding hills. On one of these brooks, something less than a quarter of a mile from the pumping station, it was found that a house was located in which one or more cases of typhoid occurred in the latter part of September. The privy was situated directly over the stream, and this afforded an ample explanation of the outbreak in the village. Samples of the water from both the brook and the supply wells gave evidences of contamination.

Miscellany.

LARGE DOSES OF STRYCHNINE IN PULMONARY AND CARDIAC DISEASES.

In a recent address before the Philadelphia County Medical Society, Dr. Thomas J. Mays advocated most strongly a more frequent use of strychnine in the treatment of pulmonary and cardiac disease. In his experience he has found better results from the use of this drug than from any other single remedy. In addition to the powerful stimulating influence over the nervous system, and its special influence on the nerve supply of the lungs and heart, it has been recently shown that strychnine also has the faculty of multiplying the corpuscular elements of the blood, and is therefore, like iron, a blood-builder. A combination of such valuable properties in a single agent makes it apparent on theoretic grounds alone why strychnine should possess such a beneficial therapeutic effect in the diseases here considered, since anæmia is one of their most common complications. It is his belief that many affections of the lungs and heart are fundamentally dependent on disorder of the nerves which supply these organs, and that the curative effects of an agent in these diseases rests largely on the power which it has of correcting this primary aberation.

He considers that the best effects have not, as a rule, been obtained heretofore owing to the administration of too small doses. The sixtieth or fiftieth of a grain he thinks comparatively worthless, and for some time he has been in the habit of beginning with at least a thirty-second of a grain. This dose he gradually increases to the limit of toleration. Contrary to the general belief, he has not found strychnine to have any especial cumulative effect, but that the long-continued use brings a degree of tolerance, so that the poison line recedes. It has been his custom "to incorporate one grain of strychnine with quinine, or some other remedy, and divide the whole into thirty-two capsules, and give one capsule four times a day. This lasts eight days, and then one-eighth of a grain more of strychnine is added to the whole quantity, which is thereafter increased one-quarter of a grain every eighth day until the limit of toleration is approached." This may be as high as one-tenth, one-seventh, or even one-sixth of a grain four times a day, for several months continuously, permanently or again increased after a time. The only untoward effect he has noticed has been, at times, a slight tendency to cause diarrhœa.

The modes of administration has some influence upon the effect produced.

In asthma, Dr. Mays obtains the best effect by "introducing about a twentieth of a grain under the skin, and administering about a thirtieth or a twenty-fifth of a grain by the mouth four times a day, and gradually

increasing this in the way above indicated. Hypodermically, it is given once a day or every other day, and, if possible, in the evening, until there is an approach to the production of the toxic effects of the drug. Suitable doses of phenacetin, quinine, capsicum and ammonium muriate will enhance its action."

In bronchitis, both acute and chronic, strychnine checks the cough, diminishes the expectoration, improves the appetite, and puts to one side the whole constitutional relaxation and feebleness frequently present, especially in the chronic form of this disease, but it must be given in ascendant doses.

In acute pneumonia, he gives a twentieth of a grain morning and night subcutaneously, with an additional twentieth of a grain by the mouth every three or four hours.

In cardiac disease, he has found in strychnine a most valuable adjuvant to digitalis. Each fulfils its own indications which are distinct: strychnine, in cases of disease from want of nutrition and proper innervation, as shown by irregular intermittent pulsation of a weak heart; while digitalis is preferable in cases where there is a want of compensatory power in the heart muscle, as in valvular incompetency.

"Bearing in mind this difference, strychnine should be prescribed when the nerve-supply of the heart is enfeebled through auto-intoxication such as is found in the post-paralysis of infectious diseases, and in poisoning from alcohol, lead, mercury, etc.

"Irregularity and intermittency of the heart's action are frequently benefited by the administration of large doses of strychnine, and more often than not do we find that digitalis is utterly useless in such cases. Sometimes the irregularity will remain even under the influence of strychnine, but the symptoms which are dependent on, or are a part of this condition — such as pain in the precordium, orthopnœa, oppression of the chest — will improve or disappear, especially if suitable evacuant remedies are used at the same time.

"Even in purely valvular disease there comes a time when digitalis fails to maintain relief. It has aided in restoring muscular power and nutrition, but when the nervous energy begins to flag, and the heart walls begin to relax, digitalis no longer possesses the requisite spurring properties.

"The pulmonary circulation becomes impaired, œdema and congestion of the lungs follow, and death is threatened by way of the pulmonary organs. It is at such a time, when digitalis fails to counteract these many incidental complications, that strychnine has its superior value as a tonic to the waning nerve energy of the heart and lungs."

TRI-STATE MEDICAL SOCIETY OF ALABAMA, GEORGIA AND TENNESSEE.

THE annual session of the Tri-State Medical Society was held at Chattanooga on October 17th, 18th and 19th. There was a large attendance and a very general discussion upon the various papers which were read.

The following officers were elected: President, J. B. S. Holmes, Atlanta, Ga. Vice Presidents, James A. Goggans, Alexander City, Ala.; Dan. H. Howell, Atlanta, Ga.; T. Hilliard Wood, Nashville, Tenn. Councillors, W. E. B. Davis, Ala.: G. W. Mills, Ga.; J. B. Murfree, Tenn. Secretary, Frank Trester Smith, Chattanooga, Tenn. Treasurer, W. C. Townes, Chattanooga, Tenn. Recorder, W. L. Gahagan, Chattanooga, Tenn.

The following resolutions were adopted:

"For five years annually the Tri-State Medical Society has enjoyed the hospitality of the medical fraternity of Chattanooga, a hospitality that is only bounded by their opportunity to share the liberality and magnificent hospitality which particularly characterizes the Chattanooga doctor. There must be something in the atmosphere or water, or more likely in the fact of this city being surrounded by these grand mountains which has the effect to draw out and develop the better qualities and higher instincts that belong normally to every man's heart, and these magnificent surroundings have succeeded in developing a body of medical men that are not only an honor to the profession, but have and are now giving to this beautiful city a reputation that has become national.

"The Tri-State Medical Society feels to-day as we have unloosed the cable and from this day forward we are afloat and will have our annual home in Georgia, and then Alabama, and that we fully appreciate the sensation of a child leaving its paternal home and going out into the world to try his fortune. We fully appreciate the importance of this step, and as we leave the home nest and wander in other lands our thoughts, our affectionate rememberances and our prayers will centre here, and our thanks and gratitude and heart-wishes for the medical fraternity of Chattanooga will ever grow brighter and brighter as the years go by. Be assured that in the heart of every member of the Tri-State Medical Society the memory of many kindnesses and splendid hospitality will ever remain a green spot, the memory a thing of beauty and a joy forever."

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

NEW YORK, November 1, 1893.

A MEETING of the Executive Committee of the Congress of American Physicians and Surgeons was recently held at the house of the Chairman, Dr. Landon Carter Gray, there being present Dr. A. L. Loomis, President of the Congress; Dr. H. P. Bowditch, representing the Physiological Association; Dr. F. H. Bosworth, representing the Laryngological Association; Dr. D. B. St. John Roosa, of the Ophthalmological Association; Dr. Abraham Jacobi, of the Pediatric Association; Dr. P. A. Morrow, of the Dermatological Association; Dr. James B. Walker, of the Climatological Association; Dr. R. W. Taylor, of the Genito-Urinary Association; Dr. W. T. Lusk, of the Gynecological Association; Dr. F. J. Shepherd, of the Association of American Anatomists; Dr. L. McLane Tiffany, of the American Surgical Association; Dr. Wm. H. Welch, of the Association of American Physicians; and Dr. Landon Carter Gray, of the American Neurological Association.

A Local Committee of Arrangements in Washington was appointed as follows:

Dr. S. S. Adams (Chairman), representing the Pediatric Association; Dr. John S. Billings, the Surgical Association; Dr. H. C. Beyer, the Physiological Association; Dr. S. O. Ritchie, the Otological Association; Dr. S. C. Busey, the Gynecological Association; Dr. W. W. Johnson, the Climatological Association; Dr. I. Atkinson (Baltimore), the Dermatological

Association; Dr. W. H. Welch (Baltimore), the Association of American Physicians; Dr. I. C. Rosse, the Neurological Association: Dr. Samuel Theobald, the Ophthalmological Association; Dr. T. Morris Murray, the Laryngological Association; Dr. D. W. Prentiss, the Genito-Urinary Association; Dr. Frank Baker, the Anatomical Association.

It was arranged that the following subjects should be discussed by the Congress at its next meeting in Washington, in the latter part of May, 1894:

The Climatological Association: "Sewer Gas."

Genito-Urinary Association: "The Surgical Kidney in its Clinical Aspects."

Dermatological Association: "Leprosy in the United States."

Laryngological Association: "Intra-Nasal Surgery."

Gynecological Association: "Conservative Treatment of the Female Pelvic Organs."

Neurological Association: "The Effects of Infectious Processes on the Nervous System."

One Association is yet to select a subject for discussion.

Dr. W. H. Carmalt, of New Haven, Conn., resigned from the sub-committee deputed to take charge of the organization of the Congress, and Dr. Wm. H. Welch, of Baltimore, was appointed in his place, so that the committee now consists of Dr. A. L. Loomis, President of the Congress; Dr. Landon Carter Gray, Chairman of the Executive Committee; Dr. Newton M. Schaffer, Secretary of the Executive Committee; and Dr. Wm. H. Welch.

LANDON CARTER GRAY, M.D., *Chairman of Exec. Com.*, No. 6 East 49th Street.

NEWTON M. SCHAFFER, M.D., *Secretary of Exec. Com.*, No. 28 East 38th Street.

Correspondence.

AN INTESTINAL ANOMALY.

HARVARD MEDICAL SCHOOL, BOSTON, Oct. 30, 1893.

MR. EDITOR: The following intestinal anomaly, in a male subject, was found in the dissecting room, and seems to me to be of considerable interest in connection with abdominal surgery.

The sigmoid flexure was found in the right iliac fossa, with its mesentery attached to the right iliac artery, and the lower part of the mesentery of the ilium adherent to the sigmoid flexure.

The cæcum, vermiform appendix, ascending and transverse colons, were in their normal positions.

Below the splenic flexure, the mesentery of the descending colon was partially adherent to the posterior abdominal wall, but the intestine itself was quite free and moveable.

On approaching the sigmoid flexure the mesentery of the descending colon shortened, but was not attached to the abdominal wall, except, of course, in the median line.

On the third lumbar vertebra it was not over an inch in length, and here the intestine crossed the aorta, to the right side of the body. Its mesentery then increased in length, was freely moveable, and seemed to be attached to the right iliac artery. A freely movable sigmoid flexure with a long mesentery was found in the right iliac fossa. The mesentery of the small intestine was normal in its attachment, but the lower six inches were adherent to the anterior surface of the sigmoid flexure.

Coils of small intestine were alone found in the left iliac fossa.

Truly yours,

FRANKLIN DEXTER, M.D., *Demonstrator.*

METEOROLOGICAL RECORD,

For the week ending October 28, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S..22	30.37	56	60	52	76	94	75	N.W.	N.E.	1	5	O.	O.	
M..23	30.30	56	59	52	97	97	97	N.E.	E.	10	29	R.	R.	.49
T..24	29.90	65	75	55	97	87	92	S.	S.W.	12	9	R.	C.	1.40
W..25	29.96	60	68	51	86	59	72	W.	N.W.	12	12	C.	C.	
T..26	30.26	46	50	41	70	66	68	N.	E.	8	12	C.	C.	
F..27	30.10	54	63	45	80	86	83	S.E.	S.E.	7	9	O.	O.	
S..28	29.80	56	61	52	94	60	77	S.W.	W.	4	10	R.	F.	.24
☞	30.09		62	49			80							2.13

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 28, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	646	253	17.70	10.80	3.90	3.00	8.10
Chicago	1,438,000	—	—	—	—	—	—	—
Philadelphia	1,115,562	374	119	12.42	10.53	3.51	.54	5.40
Brooklyn	978,394	318	130	18.56	14.40	4.16	1.00	8.32
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	214	81	16.65	9.45	2.25	2.25	10.35
Baltimore	500,000	—	—	—	—	—	—	—
Washington	306,431	100	27	13.00	11.00	6.00	2.00	3.00
Cincinnati	305,000	107	29	8.37	9.30	1.86	3.72	2.79
Cleveland	290,000	91	27	18.70	11.00	5.50	4.40	7.70
Pittsburg	263,709	—	—	—	—	—	—	—
Milwaukee	250,000	78	34	20.48	8.96	7.68	3.84	7.68
Nashville	87,754	31	9	6.46	22.61	—	—	3.23
Charleston	65,165	29	6	17.25	17.25	6.90	—	—
Portland	40,000	17	4	—	17.64	—	—	—
Worcester	96,217	23	10	21.75	4.35	—	—	—
Fall River	87,411	29	19	34.50	6.90	27.60	—	6.90
Lowell	87,191	22	13	24.85	9.10	22.75	—	4.55
Cambridge	71,100	24	6	16.64	16.64	—	—	12.48
Lynn	62,656	20	5	10.00	5.00	—	—	—
Springfield	48,684	25	8	16.00	16.00	12.00	—	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	19	7	42.08	—	15.78	10.52	5.26
Holyoke	41,278	16	—	25.00	12.50	12.50	—	12.50
Salem	22,293	9	3	22.22	—	—	11.11	—
Brockton	32,140	7	1	28.56	—	—	—	14.28
Haverhill	31,396	9	3	33.33	11.11	11.11	11.11	—
Chelsea	30,264	10	3	20.00	—	10.00	—	10.00
Malden	29,394	6	1	—	16.66	—	—	—
Newton	27,556	—	—	—	—	—	—	—
Fitchburg	27,146	8	3	12.50	—	12.50	—	—
Taunton	26,972	7	0	14.28	—	14.28	—	—
Gloucester	26,688	8	0	—	25.00	—	—	—
Waltham	22,958	7	3	14.28	28.56	14.28	—	—
Quincy	19,642	5	2	40.00	—	20.00	20.00	—
Pittsfield	18,802	5	4	40.00	—	20.00	—	—
Everett	16,585	3	3	—	—	—	—	—
Northampton	16,331	—	—	—	—	—	—	—
Newburyport	14,073	6	3	33.33	16.6	—	—	16.66
Amesbury	10,920	4	1	50.00	—	25.00	25.00	—

Deaths reported 2,299: under five years of age 823; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fever) 391, acute lung diseases 256, consumption 256, diphtheria and croup 156, diarrhœal diseases 107, typhoid fever 56, scarlet fever 23, cerebro-spinal meningitis 16, malarial fever 12, whooping-cough 10, erysipelas 5, measles 4, small-pox 2.

From scarlet fever Philadelphia 9, New York 4, Brooklyn 3, Boston 2, Milwaukee, Lowell, Cambridge, Salem and Newburyport 1 each. From cerebro-spinal meningitis New York 4, Worcester 3, Washington 2, Brooklyn, Boston, Cleveland, Lynn, Somerville, New Bedford and Brockton 1 each. From malarial fever Brooklyn 5, New York and Charleston 3 each, Nashville 1. From whooping-cough Brooklyn 4, New York and Philadelphia 2 each, Boston and Haverhill 1 each. From erysipelas

New York, Brooklyn, Lynn, Somerville and Pittsfield 1 each. From measles New York 2, Springfield and New Bedford 1 each. From small-pox New York 2.

In the thirty-three greater towns of England and Wales with an estimated population of 10,327,846, for the week ending October 21st, the death-rate was 18.4. Deaths reported 3,652: acute diseases of the respiratory organs (London) 277, diarrhœa 135, diphtheria 103, fever 82, scarlet fever 79, whooping-cough 65, measles 37, small-pox (Bradford 4, West Ham, Birmingham and Leeds 1 each) 7.

The death-rates ranged from 11.8 in Derby to 26.9 in Blackburn; Birmingham 17.8, Bolton 16.9, Bradford 14.8, Burnley 15.1, Croydon 12.9, Hull 20.5, Leeds 16.6, Leicester 17.0, Liverpool 24.7, London 18.8, Manchester 19.1, Newcastle-on-Tyne 18.3, Nottingham 14.2, Oldham 17.2, Portsmouth 14.6, Sheffield 15.8.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 27, 1893, TO NOVEMBER 3, 1893.

Leave of absence for one month with permission to apply for an extension of two months, is hereby granted to MAJOR CURTIS E. MUNN, surgeon, U. S. A.

CAPTAIN MARLBOROUGH C. WYETH, assistant surgeon, is relieved from duty at Fort Supply, Indian Territory, and ordered to Army and Navy General Hospital, Hot Springs, Ark., for duty.

CAPTAIN ROBERT B. BENHAM, assistant surgeon, having relinquished unexpired portion of sick leave, is ordered to Madison Barracks, New York, for duty.

FIRST-LIEUT. HARRY M. HALLOCK, assistant surgeon, is relieved from duty at Fort McPherson, Georgia, and ordered to Fort Bayard, New Mexico, for duty, relieving FIRST-LIEUT. PHILIP G. WALES, assistant surgeon.

FIRST-LIEUT. WALES, on being relieved by FIRST-LIEUT. HALLOCK, is ordered to Fort McPherson, Georgia, for duty.

The leave of absence granted CAPTAIN H. P. BIRMINGHAM, as istant surgeon, is extended twenty-three days.

FIRST-LIEUT. CHARLES LYNCH, assistant surgeon, is relieved from duty at Fort Omaha, Nebraska, and ordered to Fort Robinson, Nebraska, for duty at that station, relieving CAPTAIN EDWARD EVERTS, assistant surgeon.

CAPTAIN EVERTS, on being relieved by FIRST-LIEUT. LYNCH, is ordered to Whipple Barracks, Ariz., for duty, relieving MAJOR BENJAMIN F. POPE, surgeon.

MAJOR POPE, on being relieved by CAPTAIN EVERTS, is ordered to Angel Island, Cal., for duty, relieving CAPTAIN WILLIAM R. HALL, assistant surgeon.

CAPTAIN HALL, on being relieved by MAJOR POPE, will report for duty as attending surgeon, Hdqrs Department of California, and examiner of recruits at San Francisco, Cal.

LIEUT.-COL. HENRY R. TILTON, deputy surgeon-general, is relieved from duty at Fort Wayne, Michigan, and ordered to Fort Omaha, Nebraska, for duty at that post.

MAJOR LOUIS M. MAUS, surgeon, is relieved from duty at Whipple Barracks, Ariz., and ordered to Fort Sam Houston, Texas, for duty, relieving MAJOR CALVIN DEWITT, surgeon.

MAJOR DEWITT, on being relieved by MAJOR MAUS, ordered to Fort Leavenworth, Kansas, relieving MAJOR JOHN BROOKE, surgeon.

MAJOR BROOKE, on being relieved by MAJOR DEWITT, ordered to Philadelphia, Penn., to await orders.

The leave of absence granted LIEUT.-COL. JOHNSON V. D. MIDDLETON, deputy surgeon-general, U. S. A., is extended fifteen days.

MAJOR JOHN O. SKINNER, surgeon, U. S. A., having been found incapacitated for active service on account of disability incident to the service, is, by direction of the President, retired from active service this date October 26, 1893, under the provisions of Section 1251, Revised Statutes.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday, November 13, 1893, at 8 o'clock, P. M.

Dr. G. W. Gay: "Some Cases of Strangulated Hernia." Discussion opened by Drs. D. W. Cheever (by invitation), J. Homans, C. B. Porter.

Dr. Abner Post: "A Case of Œsophagotomy." Discussion opened by Drs. M. H. Richardson and S. J. Mixter.

Dr. J. Homans will present before the Society a specimen showing "The Remarkable Effects of Divulsion of the Urethra."

Members are kindly requested to show interesting cases and pathological specimens.

JOHN T. BOWEN, M.D., *Secretary.*

MASSACHUSETTS MEDICAL SOCIETY, SUFFOLK DISTRICT. — The Section for Clinical Medicine, Pathology and Hygiene will meet at 19 Boylston Place, on Wednesday, November 15th, at 8 P. M.

Paper: "The Prevention of Tuberculosis," Dr. H. F. Vickery. Drs. F. I. Knight, V. T. Bowditch, S. H. Durgin and others will take part in the discussion.

F. C. SHATTUCK, M.D., *Chairman.*
HENRY JACKSON, M.D., *Secretary.*

APPOINTMENT.

CHARLES P. PUTNAM, M.D., of Boston, has been appointed by the Mayor, a member of the newly-constituted Board of Visitors to the Public Institutions of the city.

RECENT DEATHS.

SIR ANDREW CLARK, Bart., M.D., F.R.S., LL.D., died in London, November 6th, aged sixty-seven years. He was born in Scotland and was educated at Aberdeen and Edinburgh. In the medical school he distinguished himself in all his work, gaining the first medals in anatomy, pathology, chemistry, botany, materia medica, surgery, pathology and practice of physics. For two years he assisted Dr. Hughes Bennett in the pathological department of the Royal Infirmary and was demonstrator of anatomy to Dr. Robert Knox. For four years Dr. Clark had charge of the pathological department of the Royal Hospital at Haslar. In 1854 after taking his degree of M.D. at the University of Aberdeen, he came to London and became a member of the Royal College of Physicians of London and was elected on the staff of the London Hospital. In 1858, Dr. Clark was made a Fellow of the Royal College of Physicians, in which he held the offices of lecturer, councillor, examiner in medicine and censor. He has been also Lettsomian lecturer and president of the Medical Society of London. He was consulting physician and lecturer on clinical medicine to the London Hospital; a F.R.S. and LL.D. of Cambridge, Edinburgh, Aberdeen (honoris causa), an honorary Fellow of the King and Queen's College of Physicians in Ireland, and consulting physician to the East London Hospital for Diseases of Children. He has held the offices of president of the metropolitan counties brauch of the British Medical Association and president of the Clinical Society. In 1888 he was elected president of the Royal College of Physicians, succeeding Sir William Jenner, and was re-elected in 1889 and 1890. In 1883 he was created a baronet. The following are some of his writings: "On the Anatomy of the Lungs," "On Tubercular Sputum," "Evidences of the Arrestment of Phthisis," "Fibroid Phthisis," "The Work of Fibrinous Pleurisies in the Evolution of Phthisis," "Renal Inadequacy," "The Theory of Asthma," "Neurasthenia," and "Anæmia."

CHAUNCY MUNSELL HULBERT, M.D., M.M.S.S., died at South Dennis, November 6th, aged seventy-five years. He graduated from the Vermont Medical College and has been for some years treasurer and librarian of the Barnstable District Medical Society.

STEPHEN CROSBY MARTIN, M.D., M.M.S.S., died in Brookline, November 5th, aged forty-three years.

BOOKS AND PAMPHLETS RECEIVED.

The Medical Students' Manual of Chemistry. By R. A. Witthaus, A.M., M.D., Professor of Chemistry and Physics in the University of the City of New York; Professor of Chemistry and Toxicology in the University of Vermont, etc. Fourth edition. New York: William Wood & Co. 1893.

A Practical Treatise on Diseases of the Skin; for the use of Students and Practitioners. By J. Nevins Hyde, A.M., M.D., Professor of Dermatology and Venereal Diseases in Rush Medical College, Chicago. New third edition. In octavo volume of 802 pages, with nine plates of which three are colored and 108 engravings. Philadelphia: Lea Brothers & Co. 1893.

The Blot upon the Brain; Studies in History and Psychology. By William W. Ireland, M.D., Edin., formerly of H. M. Indian Army; Corresponding Member of the Psychiatric Society of St. Petersburg, and of the New York Medico-Legal Society, Member of the Medico-Psychological Society. Second edition. New York: G. P. Putnam's Sons. Edinburgh: Bell and Bradfute. 1893.

Asiastic Cholera: Its Genesis, Etiological Factors, Clinical History, Pathology and Treatment. By John A. Benson, Professor of Physiology and Associate Chief of the Department of Clinical Medicine, College of Physicians and Surgeons of Chicago, Ill.; Member of American Anthropometric Society, of American Medico-Psychological Society, of the Chicago Pathological Society. Chicago: The J. Harrison White Co. 1893.

Lecture.

LECTURES ON SURGERY.[1]

BY DAVID W. CHEEVER, M.D.,
Professor of Surgery in Harvard University.

XIX.

SURGICAL DISEASES OF THE BLOOD-VESSELS.

The simplest form, of which we will speak first, is the ordinary

NÆVUS OR BIRTH-MARK,

that is, an enlargement of the capillary blood-vessels due to some unknown cause before birth, and generally developing and growing larger after birth. The face is the favorite seat for it; though occasionally it is found in the hairy scalp, or the back; it is usually about the eyelids, nose and lips. It usually appears on the infant as a small, flat, slightly-raised red patch, perhaps as large as the finger-nail; does not pulsate, but is spongy and erectile. If you compress it firmly with the thumb, the blood will be pressed out, and slowly return. When it happens to be near the mucous membrane, as of the eyelid, or nose, or lip, it increases because the tissue is loose, and it has a chance to grow and distend. In other locations, as the cartilage of the nose or forehead, it increases very slowly. This is the simplest form of enlarged vessels, being confined to the capillary circulation, which, of course, is dilated far beyond its normal size; but the disease apparently originates in it.

It is painless and innocent, except for the deformity which it causes. The ordinary nævus sometimes goes away of itself. If it is small, and in a place where it does not grow easily, after the excitement of the first dentition is over, it frequently sinks away and disappears. If, on the other hand, it is where it has a chance to distend, or if it is a great deformity, an operation can be done to relieve it.

Very small ones can be cured by the application of simple caustics, which leave only a small puckered scar. Caustics like nitric acid may be used. A small one can be burnt out by the electric wire, with which it can be touched. This must be distinguished, in your minds, from the treatment of any varicose, or enlarged vessels, or aneurisms, by throwing a current of electricity through them, electrolysis. That acts by coagulating the blood and does not destroy the tissues of the sac. The electric cautery, or galvanic cautery, merely burns off the whole affair, and shrivels it up and makes an ordinary scar, just as nitric acid does. In places where the nævus is not conspicuous, as on the back or arm, it can be very well cured by vaccination. That sometimes may be worth thinking of in simple cases, where the nævus is small. In larger cases there are several ways of operating to get rid of them. The ligature may be used. This makes a bad scar always; can hardly fail to do so. The nævus may be surrounded by a thread and strangled in one or two directions, and allowed to slough out; and the wound heals by granulation. A neater way is to cut them out. If the tissues are loose so that you can cut around them in sound skin, you can make a very neat result. The whole thing can be dissected out and the skin brought together as you do in taking out a small, fatty tumor, or wen.

Injecting the nævus with styptics like perchloride of iron is frequently successful, but not free from danger, inasmuch as the thrombi which are formed in the vessels are sometimes taken up and carried on in the circulation; and instances have occurred in which the injection of nævi upon the scalp of young infants has been fatal in a few moments. Of course that is a very distressing event, and we have to reflect, after such an affair as that, that we could have done it by a safer way. The larger the vessels, the more chance of absorption of clot, and some destructive consequence.

Small ones can be burnt out; larger ones can be strangled or excised. Some will go away of themselves.

The next form, which is more serious, is the venous form of

VARIX,

which is erectile tissue, composed of large veins; does not pulsate; and comes preferably about the mucous membranes. A common site is inside the mouth; inside the buccinator muscle, about or over the lips, in which case it frequently produces a great deformity. The lip enlarges and everts; and this large spongy mass of bluish color, not pulsating, hangs out upon the face. Inside the cheek they grow rapidly, and are rather difficult to extirpate. They somewhat resemble the venous condition we find in hæmorrhoids. They form occasionally in the vulva, and about the nymphæ. This form is distinguished by the fact that the tissue is frequently cavernous or erectile; and is composed of large blood cavities, and does not pulsate; but the blood can be pressed out of it like a sponge; and then it slowly fills again so as to be as large as before.

This can be cured best by the ligature. It would be especially dangerous to use the electric current. A very neat result can be got by passing curved needles on a handle, with threads, through and under, and about them, in various directions; securing the whole mass, and allowing it to slough out.

The other form, which is more intractable, though not more dangerous, I think, is that composed of enlarged arteries, and now called

ARTERIAL VARIX.

This is made up of large, tortuous, intercommunicating arteries, originally formed by the small arteries, before they reach the veins. These dilate and form other anastomosing branches, until finally you have a considerable mass forming a tumor, which is pulsating to the touch, and which possesses some of the destructive power of an aneurism. If in the temporal region, it may absorb the temporal fascia, the muscle and the temporal bone, and finally lead to fatal meningitis. This form of varix is fed by numerous arteries around its margin, of considerable size; and the final supply of the whole current comes through the nearest main artery, which feeds the parts with blood. In the temporal region the supply is from the external carotid.

Such growths as that, if they are let alone, sometimes do not become dangerous. If they are not extending they may be let alone. If, however, they are extending, and obviously absorbing the neighboring tissues, or if they cause pain, then it is better to try to cure them; and to cure them is difficult by operation because they possess a great vitality, due to the

[1] These are unwritten lectures printed from the stenographers' reports. Verbal corrections are made in revision, but no rhetorical changes. They were delivered to the third and fourth classes as part of the regular course.

numerous arteries involved. In large cases, the best way, if it can be done, is to secure the main trunk first; for an aneurism of the temporal region, to tie the external carotid. If this is tied with an antiseptic ligature and closed up, it will obstruct the vessel and check the flow through the carotid, without cutting through the trunk of the vessel, and without the danger of secondary hæmorrhage. Frequently this can be neatly done, so that the wound closes promptly; after a week, or so, the carotid is entirely cut off.

The result of this upon the arterial varix above will be to starve it to a very considerable degree, but not cure it. It will begin to take its supply from anastomoses of the neighboring system, which supplies the head. But after the patient has passed through the first operation, then while the arterial varix is very much reduced in size and has not had an opportunity to fill up again to any great degree, it may be safely attacked by tying the vessels round about, which feed it in other directions; and finally tying the mass; strangling it completely; and forcing it to slough out. In this way they are cured without danger.

On the whole, simple vascular growths may be destroyed with safety by the cautery; larger ones more safely with the ligature. Resulting scar is inevitable, except in the case where we can cut it out and bring the parts together.

The next enlargement of vessels that I will speak of, because it comes next in order, is

VARICOSITY OF THE VEINS.

Varicosity of the Veins of the Left Spermatic Region. — Varicocele, occurring almost always on the left side, is frequently a great mental trouble to the patient, and sometimes it is the seat of pain. When the varicocele becomes large and heavy, the veins dilate the deep layer round the spermatic cord; subsequently the superficial veins dilate, so that finally the two sets dilate; the deeper ones around the vas deferens and artery, and the superficial ones scattered on the scrotum going back on the perineum, and going up on the groin. The result of this heavy load of blood is to dilate the walls of the scrotum, and distend it very much, so that the whole of that side of the scrotum becomes larger than the right side, and eventually produces pain, by dragging on the spermatic nerve; in this case the pain is of a dull, aching character, and extends up the cord, until it extends to the back and loins, along the course of the ureter, up to the kidney. This pain is annoying to the patient if he is working hard; and is always more troublesome in summer than in winter owing to relaxation.

Palliation may be afforded by a suspensory bandage. This has a tendency to prevent the disease from extending and increasing, and holds it in check. The unfortunate complication sometimes arises in which the patient is the victim of hernia on the same side with the varicocele. In that case the pressure of the truss on the external abdominal ring is liable to press on the recurrent veins, and lead to aggravation of the varicocele. The blood is pumped in by the arteries, the veins are already dilated, and are further obstructed by the pad of the truss. In such a case as this it may be necessary to operate to relieve the patient of the veins on account of the pressure of the truss on the site of the hernia. The truss devised by Mr. John Wood is very useful in this class of cases. It is made in the form of a horse-shoe. The two arms rest on the pillars of the ring; the flat part of the pad presses over the internal abdominal ring. The result is that the exit of the vessels is left without compression; and it is very comfortable to wear in this class of cases; a little point worth remembering in treating a case of hernia and varicocele together.

Patients with varicocele are much more anxious to be operated on usually than the surgeon is to undertake it. The results of the operation are not always brilliant. Although it may relieve the veins which are tied, it is liable to have some effect on the nutrition of the testicle; but whether that effect is more than the effect of leaving a large varicocele alone and allowing the testicle to be distended with venous blood, I am considerably in doubt. It is fair to say that when a large varicocele is tied the testicle almost always shrinks, and in that way probably loses some of its function. All this should be explained to the patient; and if he wishes to take the chances, and is sure the varicocele is painful enough to warrant it, the operation may be done.

Morning and night showering of the part thoroughly with cold salt and water; taking of cold baths; great care to relieve any tendency to constipation; avoidance of wearing any tight bandages about the waist to compress the recurrent circulation are useful. If the operation is done, it is usually done by ligaturing the veins, either by the open method of cutting down upon them and dressing the wound antiseptically, or the old method of operating subcutaneously.

This operation is followed by pain, swelling of the testicle and scrotum; requires the patient to be confined to bed some little time; leaves him afterwards for several months with a lump on that side of the cord, so that he is quite sure he is not cured; although you may feel that the larger that lump is the more certain is the cure.

There is a little danger in this operation. Phlebitis occasionally extends up to the abdominal cavity; and sometimes has been fatal. This should be taken into account before you undertake the operation. The danger is not great. It is something, however.

Varicose Veins. — The ordinary place for these is about the calf of the leg, and around the tibia. The cause is usually largely hereditary; persons of a certain type who have a large venous system, large veins at any rate; and also position, standing and walking, constantly on the feet. The first thing which takes place is that the column of blood not being thrown back promptly through these veins, they dilate. After they have dilated to a certain degree the muscular coat of the vein loses its tonicity, and thinning of the vein takes place. Then the dilatation presently causes a forcing open of the valves, one after another, so that, finally, in a bad case, if it is laid open, you may find all the valves, for quite a distance, laid back against the wall, and incapable of closing. The result of this is a struggle of nature to carry the blood back through other veins; hence, dilatation of other veins; rapid enlargement of all the anastomosing veins occurs, and eventually the diseased condition extends up to the groin, and involves sometimes the long saphenous vein in its entire length. In the short saphenous vein it extends up to the popliteal pouch. A pouch at the saphenous opening, and another marked venous pouch at the popliteal orifice, is very characteristic of the varicose vein. In addition to that, coagula form, numerous ones; and little hard lumps form throughout

the vein at different points, chiefly near the valves, which form a partial obstruction to the current. Occasionally, also, calcareous salts, and deposits of what are called stones in the veins, phlebolites, are also found, of various sizes. That is the condition and that the history. Once begun, it is sure to progress, unless means are used for its relief. Moving about in walking compresses the veins where they penetrate the muscles, and adds to the obstruction in long-standing cases; also the giving out of more and more valves, and thus a greater weight of the column of blood. Soon after this has taken place œdema of the feet and ankles begins, and serum is forced out from these dilated vessels into the surrounding tissues. Finally, as a last stage, the venous dilatation extends even to the capillary system; and we find in such patients the feet mottled with innumerable small blood-vessels, scattered about in groups where the capillaries have been distended. The feet and ankles in this condition are always swollen. The capillary veins are so dilated, and so many of them have been plugged by little coagula, that they do not go down and get relieved when the patients lie down at night; and a condition of chronic œdema of the feet results.

The best treatment is compression; and it is the most satisfactory. It may be done by a flannel bandage, if carefully applied; or by the elastic stocking; or in more marked and severe instances by the use of an India-rubber bandage, which will compress the veins very perfectly. The flannel bandage, in the mild cases, is the most comfortable that can be used. It must be put on every day and taken off every night. It does a good deal of good to bathe the legs frequently in cold water, and lie down and rest as often as the patient can. If the patient happens to be in easy circumstances he can get along perfectly well with a flannel bandage and cold baths and the rest he can take; and thereby prevent the disease from increasing very much. Not so with the patient who is forced to labor. In that class of patients the elastic stocking is invaluable; and frequently suffices without anything further being done.

In former times, surgeons seeing the varicose vein lying upon the skin with its dilated pouches, the thrombi and the useless valves, and its tortuous course, concluded that that was the whole disease, and that if that vein should be obliterated and destroyed, the disease could be cured; hence the older method of treatment was to destroy the vein by one of two methods. A favorite method was by caustic. This was done by a caustic of moderate strength, called the Vienna paste, made of caustic potash and some other ingredients, fastened over the vein, tied on and forced to slowly burn its way. It was painful, but it was a very effectual cure. As it went on in this destructive process it set up periphlebitis, caused coagulation, destroyed skin, cellular tissue, and even made a deep scar, shrinking everything up, so that no vein could ever exist in that spot again. It was customary, where there was a long varicose vein like the long saphenous, to put half a dozen of these pledgets of Vienna paste up and down the limb; and allow this process to be done a number of times, until the vein was obliterated. This was quite safe. Thrombosis and diffused phlebitis rarely occurred, for the simple reason, I suppose, that it was gradual. Anything to which the body is subjected, if it is a gradual influence, nature accommodates itself to; so that it was a safe operation, although painful; and it accomplished what it set out to accomplish; but it did not cure, by any means, the disease. The other method which was used was the ligature, and this was more dangerous because its application was instantaneous. The current was cut off at once. Adhesive phlebitis and thrombosis was excited in the course of a few minutes or hours, and the travelling of clots and production of embolism was not a very rare consequence in this mode of operating. In addition to this, in old times, suppuration occasionally took place; and a diffused erysipelatous inflammation of the leg, already the seat of poor circulation, was apt to occur. However, in a very bad case, where they may be expected to do any good, either of these methods are justifiable; but as curative agents they are failures; and the reason is that although you destroy the vein, you have no control over the condition of the anastomosing veins which penetrate the muscles, and connect the superficial with the deep veins; so that you merely convert a superficial varicosity into a deep one, if you destroy the superficial veins.

Philosophically speaking, the only treatment of varicose veins is compression and care. An operation may be done for a case where an ulcer is overlaid by a vein so that it will not heal until that vessel is destroyed, or something of that kind; but an attempt to cure a varicosity of a limb by these operative procedures is not successful, and is a matter of some risk.

PHLEBITIS,

or inflammation of the veins, is sometimes idiopathic; and sometimes the result of injury. It may come on of itself. If it comes on of itself it may be acute, or chronic.

It is supposed to be rather an inflammation around the vein than in the vein itself. The cellular tissue around the wall of the vein inflames, and the process continues through the vein; results in coagulation of the blood; plugging up of the current and continued building up of clots; so that sometimes an obstruction which begins down in the calf, may extend up in the pelvis before the disease has run its entire course.

Certain diseases, apparently, bring on this condition, especially diseases of the erysipelatous type, and different forms of diffused cellulitis.

The appearance of phlebitis, when it occurs in the acute stage, is very marked. In the first place, pain comes on. Then it will be noticed that the limb becomes marbled with dark lines, which are the veins becoming obstructed. If these are pressed upon, it will be found that the current is flowing in them, but it returns with great slowness, and does not flow promptly, as in the healthy vein. The current is slow; the vein becomes conspicuous and swollen and darker colored, so that it shows plainly under the skin. It is painful. The neighboring tissues are swollen. The cellular tissue is infiltrated and the limb becomes big and hard. Very soon it will be found that one of these veins is completely obliterated, and that there is no current in it, and that it can be distinguished very distinctly under the skin as a hard cord pursuing its course up the leg. It is impervious; filled with coagula; and these coagula are going to extend upward. Whether or not they will do any harm depends upon the cause of the disease. If the cause of the disease happens to be septic, the coagula appear to be imperfectly formed; soften readily; become themselves occasionally the seat of septic decay, and the factors,

so to speak, in producing the different stages of pyæmia, and absorption of pus, as it used to be called, from the vessels, in distant parts of the system. But if the phlebitis happens to be caused by a blow or wound, which is doing well in a healthy individual, or comes on in a person of feeble circulation, who is old and feeble, and who has a slight coagulum form in the vein from the slowing of the current, then, in either of these cases, the course of the disease is not rapid: is not very acute, and it is not very dangerous. It is very annoying, very tedious, but does not usually result in septic infection, or the travelling of large embolic clots. Phlebitis as an accessory, as a condition of a septic state already existing, is one of the most dangerous signs that we can see; and we may almost despair of arresting its progress and its tendency to produce pyæmia, if we see it occurring in connection with a foul wound, or a bad state of the limb in which it happens to be; on the other hand, phlebitis of a more moderate and subacute kind is not essentially dangerous.

Treatment. — The treatment of the milder and chronic kind is the more successful, of course. The first requisite is entire rest in the horizontal position; and the next requisite is that, as regards any manipulation, the vein must be left entirely alone. Hot applications are frequently very grateful, and some of them of a good deal of influence in quieting down a moderate state of subacute periphlebitis. The limb should be in an easy and relaxed position; the patient confined to bed; and the parts heavily covered in large poultices. To these frequently may be added with benefit, laudanum, and outside of it India-rubber cloth, or oiled silk, so that the leg may be steadily steamed and fomented in the poultice. This gives comfort, and seems to assist in resolving the trouble. Patients who have had one of these troubles instantly recognize what is taking place. They are seized with a stabbing pain, and find a little knot developing, which is hard and painful. Then a minute red line, marking the course of the vein, may be seen. Patients who have this tendency, and are subject to many attacks, if they know how to treat it at once, frequently can, by a week's confinement at first, prevent months of confinement afterwards.

In the septic variety, accompanied as it always is by suppuration and cellulitis, deep and free incisions; removal of all causes of irritation; antiseptic irrigations and washes; sustaining the strength of the patient with strong tonics and alcoholic stimulants, etc., may do something to assist in arresting the diseased process.

VENOUS HÆMORRHAGES.

When a vein is wounded it bleeds largely, but only in expiration. When the patient draws the breath in, the blood is drawn in towards the heart, and when the patient expires, blood flows with a great gush from the vein. This is the case in veins of ordinary size.

The most common cause of venous hæmorrhage, except from wounds, is the rupture of a varicose vein. This frequently occurs, and they bleed to a large extent; sometimes fatally, but not often. A venous hæmorrhage can be easily checked by pressure; and, if that is not sufficient, the vein can be exposed and tied exactly as an artery is tied. The old prejudice which used to exist against tying veins no longer exists; and whatever danger there may be in tying veins — the danger of setting up periphlebitis — is infinitely diminished by the fact that we use antiseptic ligatures, and dress them in an antiseptic way.

AIR EMBOLISM.

One of the most distressing and rapidly fatal accidents that can occur in the venous wound is the entrance of air. It must be a large vein to do it. It is sucked in in inspiration. That is the case in the larger veins about the neck which do not have valves; and is especially the case when the mouth of the vein happens to be held open, after it is cut, by its being attached to a fascia, as about the neck, in the popliteal space, in the groin, etc.; but especially the neck. When, for example, the surgeon is engaged dissecting out a tumor in the subclavian triangle, everything is done easier if the parts are on the stretch. The tumor is lifted to dissect it out; the parts beneath are on the stretch. They are out of sight, very likely displaced by the growth of the tumor. The vessels may be enlarged as well as displaced by the long-continued pressure of the tumor. It is then easy to understand how it frequently happens that the surgeon, in dissecting out the tumor, cuts through the fascia and the wall of the vein; the patient, making an inspiration, draws air into the vein, and the immediate consequence is what is sometimes called air embolism; that is, the air rushes down into the right cavity of the heart; appears in some way to obstruct immediately the action of the valves, either by displacing the blood and causing a froth, or by churning up of the blood; at any rate, the immediate effect on the heart is terrible and disastrous. The patient gasps; paleness and lividity come on; and death takes place in a very short space of time.

The best treatment, of course, is the preventive treatment; and there are two ways that must be used: either an assistant must be ready to thumb any vein that may be opened, and keep his thumb right about the subclavian region while the operation is going on; or another expedient may be used, which is to keep the bottom of the wound which is being dissected thoroughly wet in a puddle of some antiseptic fluid. Either of these measures are safe ones.

When the accident occurs it is generally fatal. One or two bubbles of air occasionally go in and do not make enough trouble to destroy life, although there is temporarily faintness and palpitation. The sound of the entering air is usually quite distinct. It is sucked in with a distinct gurgle; the surgeon at once becomes conscious of the fact; compresses the vein; injects ammonia or brandy; promotes artificial respiration; and, in the slight case, succeeds in saving life, but not in the severe ones.

ATHEROMA.

The next subject we will speak of is that condition of the arteries which leads to the formation of aneurisms. It is called atheroma. It is a fatty degeneration of the inner coat of the vessel followed by ulcerations and the deposition of calcareous salts, brittleness and stretching of the wall of the vessels and the formation of a sac.

An aneurism means a sac, or bag, which contains blood. It is usually what is called true or false. If it is a true aneurism, it is a dilatation of all the walls of the artery. If it is a false aneurism, it is a dilatation only of a portion of these walls.

The mode of its formation is always consequent

upon this atheromatous change in the arteries themselves. The arteries are very smooth elastic tubes. They twist and yield with every pulsation of the heart. They shrink and open. They are governed by a set of nerves which control the muscular movements of the walls. They enlarge or diminish in consequence of the needs of the part to be supplied with blood. When the part or limb is in violent exercise and the person running rapidly, an additional blood-supply is sent. The arteries enlarge; they beat more rapidly and expand also; therefore it is essential to the life of a part that the artery should be compressible, elastic, distensible. When the condition, or change, which is called atheroma takes place, the artery becomes diminished as to its calibre and stiffened as to its walls; loses its elasticity; cannot carry any more blood at one time than at another time. The consequence is, in elderly people, when the atheromatous condition is well pronounced, that the blood-supply to the feet and distant parts is not only insufficient, but is incapable of being increased. Let such a part be exposed to cold and the blood cannot come. The result is, frequently, in the elderly, the gradual occurrence of senile mortification of the foot in consequence of a slight bruise, or a little lameness, or ingrowing nail; exposure for a few hours in riding; anything of that kind will gradually bring on stoppage of the circulation; starvation of the part and mortification; senile gangrene of the limb. That is one of the consequences of atheroma.

Another is that it not only stiffens the walls of the vessels, but leads to ulcerations, deposits of calcareous salts and thinning of their walls and formation of aneurisms. Without going into detail we can make plain in a few words how this takes place. Given a very smooth elastic tube which has got to carry a certain amount of blood, and is constantly in motion by the pumping of the blood through it, the first thing that takes place usually is the loss of brilliancy and smoothness of the innermost coat. Now the innermost coat of the artery is nourished mainly by imbibition of the blood which runs through. One stage of the degeneration which results when the coat is not perfectly nourished is the formation of fat. Fat cells form. It loses its smoothness, becomes slightly roughened and softened. What takes place when in ordinary cases a current of blood that is being pumped through a smooth tube meets with an obstruction? What takes place when we cut an artery, or vein, and allow the blood to flow upon some surface? Immediate deposition of fibrin, and the blood separates into its clot and serum and fibrin. The result of this slight roughness inside of the vessels is that slow deposition of fibrin takes place; more obstruction ensues; the current of blood beats with irregularity upon the wall of the vessel, and the inner coat, being deprived more and more of its nutrition, finally gives way. The result is a slight ulceration. The result of the ulceration is a pocket of greater or less size in the wall of the vessel. In this pocket gradually become deposited the lime salts in the form of plates.

Given a point in the vessel where there happens to be a meeting and crossing of two or three currents, where the circulation is not so perfect, having to cross, as it would in a single tube, here let an atheromatous change take place with a little ulceration and you can see how readily that pocket will deepen, that ulceration will increase, and the coat of the artery will be stretched more and more, and finally we have a sac or pouch formed in which the blood must go round and round, and be delayed in its progress. This is the way the ordinary true aneurism is formed.

The moment the sac is formed, blood delayed in it and the circulation impeded, nature goes on to another process, which tends to cure it; and that is by the formation of large coagula in the sac, which shall resist the impulse of the blood; be buffers as it were against the danger, and lead almost to a state of repair. The layers of fibrin which are deposited from the coagula on the inside of the sac become pressed down thinner and thinner, and those which lie next to the wall of the sac become very white, thin and firm; the next less so, and the next less so; so that you can see, in cutting into a fresh aneurism, a long series of concentric layers like the layers of the bark of a tree; those nearest the sac white and hard, next a little darker, and the central ones more and more soft. Nature makes an aneurism by ulceration of the inner coat. She tries to cure this aneurism by the coagulation of the blood inside the sac itself. As these coagula form more and more, the current of blood must go more and more slowly and imperfectly through the sac. Finally the blood, instead of being forced through, trickles through, and the aneurism may be almost cured. This is nature's process. Now it seems to me that this process indicates precisely the course we should endeavor to pursue in curing an aneurism; that is, to imitate nature as nearly as we can; to slow the current, and encourage the deposition of coagula by gradual compression and by rest.

Original Articles.

AN INVESTIGATION OF AN EPIDEMIC OF TYPHOID FEVER IN THE CITY OF SPRINGFIELD, MASSACHUSETTS, DUE TO INFECTED MILK.[1]

BY W. T. SEDGWICK, PH.D.,
Biologist of the Massachusetts State Board of Health,

AND WALTER H. CHAPIN, M.D.,
City Physician and Member of the Board of Health of Springfield.

About the first of August, 1892, it was noticed that typhoid fever was unusually abundant in a particular district of the city of Springfield. This city (of about 47,000 inhabitants) covers a large area extending north and south along the Connecticut River, and upon somewhat higher land to the eastward. Its soil is chiefly sandy or gravelly, and the situation is regarded as salubrious. The particular district in which typhoid fever began to appear in such abundance as to excite comment, and at length alarm, is known as the "McKnight district," and lies upon a gravelly plateau of wide extent, such as often characterizes the terraces of the Connecticut valley. It is included between State Street and St. James Avenue. The district has been comparatively recently "developed" by enterprising real-estate activity, and may fairly be described as having a refined and attractive suburban character; the houses, mostly of wood, standing somewhat back from the street, are provided with grassy yards or lawns and sometimes with gardens. The sanitary arrangements are in keeping with the exteriors; in brief, the district forms an inviting, whole-

[1] From the forthcoming Report of the State Board of Health of Massachusetts, for 1892.

some and excellent suburban community. There are other parts of the city, similarly situated, some as good, some better, than this; but most of the city is far less favorably situated, less inviting, less clean, and in parts, especially along the river, crowded with tenement-houses; still other portions consist chiefly of shops or stores or offices, amongst which dwellers of a lower grade are crowded. But in none of these except the McKnight district did typhoid fever make its appearance in July, 1892.

The perplexity of the people, therefore, was great, and, as is usual in such cases, various theories were advanced to account for the epidemic. Some of these were manifestly untenable; others, although resting only upon vague conjecture, were soberly propounded and seriously discussed among the citizens and in the newspapers. Even physicians and the local sanitary authorities were deeply perplexed. Attention was first drawn to well-water as a possible cause of the disease, some of the people in the McKnight district having resorted largely to well-water in preference to the city water during the hot months. But it was naturally urged as a sufficient objection to this hypothesis that many, indeed most, of the victims had used only the public water-supply for drinking purposes. A similar hypothesis was advanced in respect to certain spring-waters widely sold in the district, but the same objection was effectively raised in this case. Some turned to the drainage and some to the sewerage of the district as the probable source of the trouble. But it was immediately pointed out that the houses affected were mostly new and the plumbing was generally in good condition. With respect to the sewers, a stench from the man-holes in the neighborhood of Yale Street was said to be noticeable at times, and we found that this was a fact; but the superintendent of sewers showed that this was an incident of the hot season; that the smell was no worse this year than in previous years when there had been no fevers; that the fall of the sewers was usually good, and the system of flushing them excellent. Moreover, many of the houses nearest to the man-holes had no typhoid fever cases; so that the sewer-gas theory, also, proved to be inadequate to account for the outbreak.

The officers of the local Board of Health began work upon the impure-water theory, and in conjunction with a local chemist proceeded to examine, chemically, the numerous wells of the district. They found several wells containing large amounts of chlorine, and many which gave evidence of more or less remote sewage contamination. But in spite of their results it remained an insuperable objection to the theory of well-water contamination as the cause of the trouble that some of the cases had had no access to well-water.

Still new cases of fever continued to appear, and the local perplexity increased. It was observed by some of the citizens and made known, that many of the families affected were served with milk by the same milkman. The city physician, therefore, communicated with the latter, and on August 8th, by which time there were known to be twenty or more cases of fever in the district, visited, under the guidance of the milkman himself, the several farms from which he derived the milk furnished to his patrons in different portions of the city. All of the farms were thus visited by the city physician except one, which, he was informed, had already been visited by a well-known and competent physician of Springfield, and found to be in good condition. He was further informed by the milkman that all of the milk distributed to the McKnight district, had come invariably from two farms in Agawam, a town adjoining Springfield, and these he found to be excellent farms in good condition, with no history of any typhoid fever upon either of them. It was learned, also, that the milkman's cans were washed and steamed only at the Springfield Co-operative Milk Association's headquarters, and that there was no reason to suspect that the origin of the fever was in any way connected with the water thus used; for the same water, under the same system, at the same place, was used for many other dairymen's cans, and no typhoid fever had appeared upon their routes. The conclusions drawn from the results of investigation of the milk-supply was, therefore, as stated in a local newspaper on August 9th, that the milk-infection theory was "entirely set aside."

In the mean time it had been suggested that the comparative proximity of a neighboring cemetery might be the hidden cause of the epidemic, and a cemetery theory was fully discussed in all its bearings. This received a severe blow when it was found that a well in the cemetery itself contained less ammonia than the wells in the McKnight district, but it continued for some time to hold a place among the favorite theories, in spite of the fact that there was not a particle of evidence in its favor, and every reason to reject it. It was hard pressed by the sewer-gas theory, especially on those streets with odoriferous man-holes; but both soon after lost some adherents, who went over to the infected-vegetable theory, namely, the theory that green foods, such as lettuce, tomatoes, celery, having been splashed by liquid manure previously infected, had been eaten uncooked, possibly in salads, and had thus produced the disease. This theory, however, like most of the theories advanced, failed to explain why the people in this district only were affected, or why, among all the families in this district, the particular families affected had been smitten. Last in the series, the theory of ice infection was brought forward as the probable cause of the outbreak; but inasmuch as the ice-supply of this district was in no respect different from that of the rest of the city, and the affected families had been served by the same carts as many families totally unaffected, this hypothesis also seemed to be untenable.

It is interesting to bring together, as more or less typical of the vague and often wholly unsupported speculations as to the cause of particular epidemics of typhoid fever, those which were propounded in the present case and were deemed worthy of mention in the public prints. They were as follows: (1) impure well-water; (2) impure "city" water; (3) defective drainage or plumbing; (4) defective sewerage, or sewer-gas; (5) infected milk; (6) influence of a cemetery, probably upon the well-water supply; (7) infected vegetables; (8) impure ice. These were not all of the theories advanced, but they suffice to show the usual condition of public opinion in the presence of an outbreak of typhoid fever.

All of these theories, if such they may be called, were propounded and discussed at much length, both in private and in the public prints, within the first week after attention had been drawn to the epidemic. During the second week the local debate was actively continued, but no new theories were advanced, the State Board of Health was not notified, no thorough

investigation was made, and no just conclusion was reached. The anxiety and alarm of the citizens remained undiminished. Finally, in the third week of the debate, the State Board of Health was appealed to, and one of us (W. T. S.) was sent to the aid of the local Board of Health, arriving in Springfield on August 14th.

On August 15th, the authors began a joint investigation of the cases affected, using for the purpose the blank already described in connection with the epidemic in Lowell. After nineteen houses in the infected district had been visited and forty-six cases, examined, it became clear that all theories hitherto advanced were untenable except the milk theory. No other common bond of connection whatsoever could be found, but *all of these families except one had been taking milk from the same milkman*, as had already been alleged but not proved. This milkman (F. D. K.) was by no means the only milkman who sold milk in the McKnight district, but we soon discovered that he was the only one upon whose service there was any typhoid fever. In the exceptional case mentioned above, we afterwards found that the family got milk regularly from another dealer (upon whose route there was no other case of typhoid fever), but that almost as regularly this family bought milk from a grocery supplied by F. D. K. We therefore concluded provisionally that the epidemic was probably due to infected milk; but inasmuch as it seemed to be plain that one of us (W. H. C.) had hitherto been misled, we did not immediately announce our conclusions, although we straightway acted upon them, and proceeded to interview and cross-examine more closely F. D. K., the milkman who had served the infected houses with milk.

By him we were informed that all of the milk which had been supplied to the infected houses had come from the two farms in Agawam already referred to above. Upon this point he was positive and explicit. On the next day, therefore, we visited Agawam, in the hope of finding the source of the infection. As has been said above, these farms had already been visited by one of us (W. H. C.) on August 8th, in company with F. D. K. himself, and found to be in good condition; but to our surprise we now discovered on one of them, on the 16th, a well-marked case of typhoid fever, which had apparently developed since the visit on the 8th just referred to. The most careful cross-examination of the family (which was that of a well-to-do farmer) gave no indication of any previous case of typhoid fever on the farm, and this one appeared to have contracted the disease in Springfield, thus sharing, rather than explaining as a cause, the outbreak there. It was possible, however, that the local well which, as is usual in such cases, was not far from the privy, had somehow got infected, had conveyed the disease to the milk, through washing of the pails or otherwise, and had thus infected in turn not only those in the McKnight district served with the milk, but also the farmer's son, who might have got the disease either in this way or directly from drinking the water of the well, his parents, who were beyond the most susceptible age, having escaped. Much perplexed, we therefore took samples from the farmer's well for chemical and bacteriological examination in the laboratories of the State Board of Health in Boston. Bacteriologically the water proved to be unobjectionable, and chemically showed an excellent purification.

The inquiry was interrupted by the enforced absence of one of us, but was resumed on August 19th.

The samples from the farmer's well in Agawam having shown no evidence whatever of infection, the problem seemed as puzzling as ever, when we were suddenly put upon what proved to be the right track by information showing that we had been grossly deceived by the milkman, and that in truth the Agawam milk was not the milk regularly served to the infected houses in the McKnight district.

It has been stated above that the milkman took one of us (W. H. C.) to all of the farms from which the milk that he sold "on the hill" came, *except one*. We have since discovered that the milkman, probably in pursuit of a well-formed plan, took pains to drive the city physician first to the farms remotest from the one really to blame, and then to others in succession, until the latter grew weary of the apparently fruitless visitation of excellent farms. At last the milkman remarked to him that there was still one farm lying far to the westward and much out of the way homewards, from which he got some milk; but that "Dr. H. had been out there, and everything was all right." In the belief that this was true, the milk theory, which up to that time had had no better basis than any other, was abandoned by W. H. C.

We now learned, however, that the latter had been deceived, and that the milkman, before the public had become very seriously alarmed, had told Dr. H., who was his family physician, that the milk which he was serving to the infected houses in the McKnight district was coming from the one farm to which he did not take the city physician on his round of inspection; and thus we had positive proof both of his duplicity and of the true source of the infected milk. We therefore immediately proceeded to the farm in question, which was located in Feeding Hills, and were rewarded by the discovery that upon this farm there had been one, and probably more than one, case of typhoid fever several weeks earlier. The location of this farm, which we have every reason to believe was the source of the disease in Springfield, is shown upon the accompanying figure (see next page).

The farm was owned by a well-to-do farmer, who raised, among other things, tobacco, and kept a dairy. By inquiry we found that the farmer's daughter had had in the spring a case of "bilious typhoid fever." There was also a history of others upon the place "obliged to go to bed with slow fever," and it only remained to trace some possible connection between these cases and the infected milk. This we did not succeed in doing to our entire satisfaction, but we did find two possible avenues of contamination.

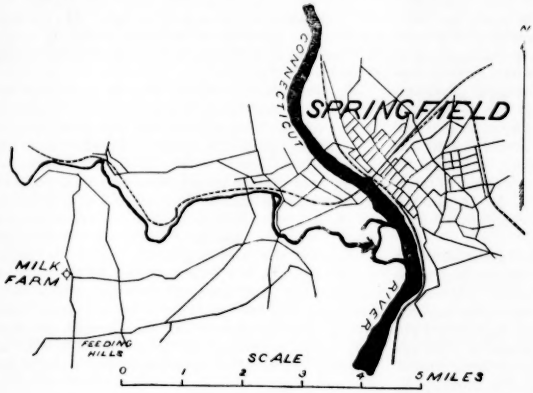
Most producers of milk for sale in cities cool the milk by allowing the cans freshly filled to stand in "coolers," surrounded by ice or iced water. In the present case the farmer had no ice, and therefore was in the habit of lowering the cans by means of ropes into a well adjoining the cow-yard. But unlike some of his neighbors, who hung cans in their wells just above the water level, this farmer *submerged* his cans, and allowed them to rest upon the bottom of the well, so that they were covered by from two to four feet of water. Here the morning's milk stood all day and into the evening, the evening's milk remaining if at all only a very short time before all was "collected" and carted off to arrive in Springfield, some six miles away, about midnight or a little later, being distributed at

dawn, by the milkman referred to above (F. D. K.), to the consumers in the McKnight district.

At the time of our first visit to the farm we discovered the cans of morning's milk quietly reposing entirely out of sight on the bottom of the well. This was in most respects an ordinary dug well, but of unusually large diameter. It was covered with a platform of old and badly worn planks loosely laid on, and with rounded edges bordering on wide cracks. To allow the cans to be sunk and lifted, the planks were loose and separate. The cans were lifted by worn ropes, each of which ran through a hole in a plank and ended above in a large knot. On one side of the well was a chain pump, the spout of which overhung the platform, so that careless pumping easily washed matters on the planks near by through the wide cracks into the well. On the planks lay lumps of manure evidently left there by the dirty boots of the men. A little pumping proved that these were easily washed into the well; and, indeed, ordinary stepping about upon the planks to handle the milk cans or to pump must have cleaned the boots of the men at the expense of the water in the well.

On lifting the cans, on one of our visits, we found, by drawing them up and inverting them, that out of nine four leaked milk around the wooden stoppers with which they seemed securely plugged. Moreover, not one of them was *completely* full. On shaking the cans, the splashing of the milk inside was plainly heard. It was clear that if milk would leak out when the cans were inverted in the air, water would leak in when the same cans were submerged under water. Thus by submersion the milk was not only cooled in temperature but to some extent augmented in volume. The well water was plainly dirty, and bacterial analysis showed it to contain *B. coli communis* in abundance, a form which testifies to the presence of fæcal contamination, at least of animal origin. There was no question in this case of pails or cans washed in infected water, for the former were washed in the house in mountain tap water, and the latter were steamed in Springfield.

This well, however, was at some distance from the house, and not used there for drinking. It was easy to see how, if the well were contaminated, the milk sunk in it might have become so. But how could the well have been connected with the cases in the house? A plausible hypothesis was the following: the excreta of the patients went into the privy, and there is reason to believe that they were not disinfected. The contents of the privy, shortly before the infection reached Springfield, were spread upon the tobacco field. From this field the workmen frequently passed to the well to get water and to work about the milk. It is not difficult to believe that in doing so they may have carried upon their boots masses of fæces, originally from the privy, from the field to the well into which pieces fell through the cracks while the men trod upon the irregular planking. Whether or not this theory is true we shall probably never learn. An alternative hypothesis, moreover, remains. Upon most farms of this sort the "help" is constantly changing. Hired men only a few grades better than tramps come and go. There was a history of much of this kind in the present case, and it may easily have been that some such person acting for the time being as milkman was suffering from incipient or "walking" typhoid fever. In such a case a self-infection of the fingers, such as can only too easily happen, may have led to a heavy infection of the warm milk, such as must have existed in the milk which was served by F. D. K. to the McKnight district in Springfield.



The milkman (F. D. K) for a time maintained with bold assurance that the milk from this particular farm had never gone to the infected houses; and therefore, in order to have independent evidence, we undertook a minute and systematic study of the somewhat intricate system of milk-supply in Springfield. The problem was complicated by the fact that this particular milkman delivered from two separate wagons, and loaded these with milk from several dairies at two distinct points. But after many vexatious researches, including a visit by one of us (W. H. C.) to all of the dairies selling him milk, for the sake of obtaining documentary and statistical evidence of the dates and amounts of milk supplied by the several farms, delivered by the carriers and loaded upon each of his wagons, with the time of starting and the route of each, as well as the actual purchases of his wholesale customers, to whom he now affirmed that all of the Feeding Hills milk had always gone (thus contradicting flatly his original statement to Dr. H.); after interviewing his assistant, or "striker," who had delivered the milk; after having had the aid, also, of the able inspector of the Board, Mr. McCaffrey, — we at last obtained positive evidence from wholly independent data that the milk which went to the infected houses must have come, beyond a peradventure, from the farm in Feeding Hills. In all of this we were very greatly aided by the officers of the Springfield Co-operative Milk Association, who courteously gave us access to their books, and in many ways afforded us invaluable assistance.

It now remains to describe somewhat more fully the

epidemic itself. It must not be forgotten that many other milkmen besides the one concerned served other houses in this district, which is thickly settled, but in none of these was there any fever. The correspondence of the cases of typhoid fever with their milk-supply is plain, although, as would be expected, some houses served by this milkman had no fever. There is good reason to believe that the infected milk was not the only kind that he carried, and that a different milk was sometimes delivered, for example, in the Ingersoll Grove district.

It will be observed that there were a few cases of typhoid fever in other parts of the city. A very few of these were imported. Of the others, those on Tenth and Essex Streets deserve special comment. After the milkman became alarmed, he is known to have refused, for a time, to take milk from the dairy in question. We have positive evidence that milk from this dairy afterwards went to Essex Street; and that here, also, the fever appeared, is one of the strongest links in our chain of intrinsic evidence. Similarly, seven cases of typhoid fever suddenly appeared about August 20th, in an hotel in the heart of the city; and while no positive evidence was found that milk from the infected dairy went to this hotel, we did discover that, at the time when this milk was under a cloud and was held by the Association, one can of reserved milk (ten quarts) was sold by them to that hotel, that this was an unusual occurrence, and at the very time required to have conveyed the disease to the hotel. As for the rest of the city, it was throughout the epidemic period almost wholly free from typhoid fever. The annual autumnal wave had not yet begun to rise.

The whole number of cases discovered and investigated was one hundred and fifty, and the whole number of deaths belonging to the epidemic was twenty-five. The intensity of the epidemic may be seen upon the accompanying diagram of monthly mortality from typhoid fever, which shows well also the limits of the epidemic period. A study of the death-rate from typhoid fever in Springfield, by months for the twelve years, 1881–92, shows a marked improvement since 1883, and an enormous excess in August, 1892, at the height of the epidemic. The death-rate from typhoid fever during this month was by far the highest during any month of the entire twelve-year period.

Out of the whole number of cases, one hundred and fifty, one hundred and one had milk sold by the same milkman (F. D. K.), while one hundred and thirty-five may have had access to the same milk.

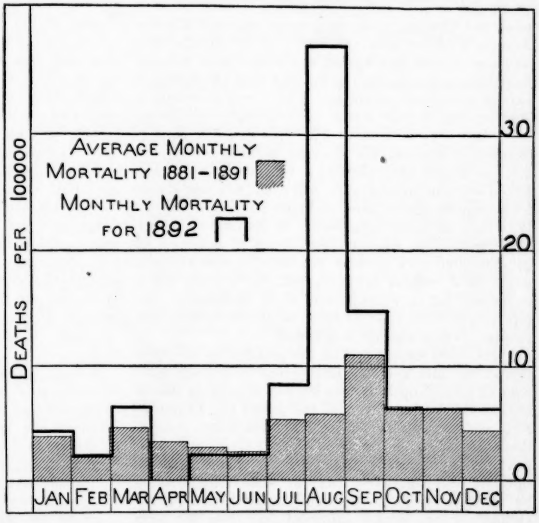
For aid in the preparation of the map and diagram, we are indebted to Mr. R. D. Chase.

A LONDON surgeon recently completing a laparotomy, gave his needle a flourish that took out the lens from the eye of an unfortunate assistant.

AN INVESTIGATION OF AN EPIDEMIC OF TYPHOID FEVER IN SOMERVILLE, MASSACHUSETTS, DUE TO INFECTED MILK.[1]

BY WILLIAM T. SEDGWICK, PH.D.,
Biologist of the State Board of Health of Massachusetts.

TOWARDS the end of August, 1892, the attention of the Somerville Board of Health was drawn to a sudden and nearly simultaneous appearance of a number of cases of typhoid fever. The physicians reported the cases with commendable promptness, ten having been reported on August 23d alone, and an inquiry set on foot by the local Board of Health immediately revealed the fact that most, if not all, of the cases were served by one and the same milkman. Thereupon the Somerville Board reported the outbreak to the State Board of Health, and I was instructed to make an investigation. In view of recent experience in the Springfield epidemic, described in a previous paper, which I was still studying, I was able to work rapidly, and began by verifying the data already in hand. It afterwards appeared that during the three weeks, August 20th to September 10th there were in the entire city of Somerville thirty-five (35) cases of typhoid fever. Of these one was imported, one was plainly a secondary case, a third was a very old case tardily reported. Thirty-two (32) cases were apparently primary and indigenous and remained to be accounted for. Thirty (30) of these had been served with, or had had access to, milk supplied by one and the same milkman. Of the other two cases, one was an old case of which the diagnosis was uncertain, though there was also a possibility that it was itself secondary to an earlier one; the other was synchronous with the epidemic period, and was that of a young woman who was in the habit of buying milk at



[1] From the forthcoming Report of the State Board of Health of Massachusetts, for 1892.

a certain bakery. A bakery next door to the one from which she was in the habit of buying milk was supplied with milk by this particular milkman, and the keeper of this bakery and her daughter were among the persons who suffered from typhoid fever. I could not get the young woman or her mother to admit that they had ever been in the nearer bakery which had the suspected milk; but as they had to pass it to get to their regular bakery, I cannot keep feeling that on some unusual occasion some member of the family had perhaps stepped into the nearer bakery and got some milk. This case coincided in time with the rest; but in view of the evidence I have considered it an unexplained case.

The usual theories of water infection, sewer emanations, etc., were advanced by some to account for the outbreak, but were all easily disproved. The city of Somerville uses the "Mystic" water-supply of the city of Boston, and this supply is not altogether unobjectionable but, inasmuch as the same supply served the whole city as well as the neighboring cities of Charlestown and Chelsea, while the present outbreak was confined to a limited area, the theory of wholesale water infection was easily disposed of. The region most affected was a fine portion of the city with the houses in excellent sanitary condition. There was no reason to suppose that the air, water, ice or sewers were worse here than anywhere else. The only common bond of connection between the infected families which was not also shared by thousands of others who were uninfected was the milk-supply; and even this was shared by a large number of families in one portion of the city in which no fever appeared. It became necessary, therefore, before adopting the theory of infection by contaminated milk to show not only (1) how the milk might have become contaminated, but also (2) how it happened that only one portion of the milkman's route was affected with typhoid fever, while another and important portion was not so affected.

I addressed myself first to the problem of the infection of the milk, and after having interviewed the milkman at great length for the sake of mastering the details of his business, visited the farms (in Littleton) from which the milk was said to have come. All of these proved to be free from typhoid fever, and to be examples of unusually decent dairies. From Littleton the milk was sent once a day to Somerville, arriving by train early in the forenoon at the Union Square station. I was further informed that from this point it was carried in a wagon, still in the cans used for shipment, holding eight and one-half quarts each, to a kind of barn called the "milk house" near the residence of the milkman. I was also told that in the milk house the milk was "mixed" by being poured from the large cans into the mixer, a capacious upright metal tank provided at the bottom with a faucet. After mixing (to produce an even grade) the milk was drawn off into the small cans supplied to consumers, these being next stoppered with wooden plugs and finally set away in the ice box, where they were "iced" and stored until early the next morning. At daybreak or earlier these small cans were delivered to the consumers by means of two wagons, each having a special route and a special series of customers. Inquiry showed that in proportion to the number of takers the cases were about equally distributed upon the two routes, which indicated that the infection must have existed in the mixer or in the cans, or possibly in both. The milkman-in-chief had two sons, one of whom was lying dead of typhoid fever when I first arrived on the spot. The date of the report of his case, however, agreed closely with that of the other sufferers from the disease, and he was also said to have been a great drinker of milk, so that he appeared to be simply a sharer in the common calamity. This son (W. B.), I was told, drove one of the wagons and worked in the milk house, but never handled the milk. It was his duty merely to wash the cans, while his brother, who drove the other wagon, "handled" the milk. This brother was not attacked by the disease.

Thus far it appeared that the milk had unquestionably arrived in the city uninfected, and had been carried in the unopened cans directly to the milk house, still uninfected; but when it left the milk house in other cans, some of it, at least, must have been infected. There was but one logical conclusion, namely, that it had somehow got infected in the milk house. I therefore investigated more closely the case of the son (W. B.) who had just died of typhoid fever, and was rewarded by the discovery that, although his case had indeed been promptly reported by his attending physician, and thus apparently belonged with the rest, it was in reality much older than the others, and dated from a time early enough to allow him to have contaminated the milk, and thus to have been the unfortunate cause of the whole trouble. This young man had first consulted another physician, who had failed to inform him of the true character of his disease, and, instead of putting him to bed, had allowed him to keep on with his work until finally the fever affected him so seriously that he could hardly keep his seat on his wagon, and at last, in desperation, consulted a competent physician. Then, and not before, his case was recognized and reported, and he was sent to bed; but so far was the disease advanced that the next day he had one intestinal hæmorrhage, followed before long by others of great severity; and very soon after he died.

It is plain that this young man worked in the milk house about, if not at and over, the milk, until he was in an advanced stage of the disease. It was denied by his father and brother that he ever "handled," or, as the phrase is, "set up," the milk, that is, transferred it from the large cans to the "mixer" and then to the little (consumer's) cans. It was alleged that his office in the milk house was simply to wash the cans, never to set up the milk. This point was urged upon me with eagerness and persistence, as fatal to my theory; but without discrediting the honesty of the affirmation, I cannot readily believe from what I have seen and learned of the milk trade, milkmen, milk houses, etc., that a division of labor really existed in this case so complete as would be required to exclude all possibility of infection of the milk by a sick man working within a few feet of the "setting-up" process, and doubtless ready and willing to lend a hand. I do not believe that, when two men are working day after day over milk in one room, one man always and without exception washes cans, while the other always and without exception puts milk into cans.

As to the precise way in which such a person might contaminate the milk there is no difficulty, even if he were only a washer of the cans. If such a person, in the early stages of the disease, affected with diarrhœa, should merely fail to wash his hands on returning from the privy and should then proceed to wash cans or to

help in emptying the cans into the "mixer," particles upon his fingers might drop or be brushed or washed off into the milk. That many people do habitually omit to wash their hands under similar circumstances is a fact.

In spite of these important discoveries, there still remained for some time a very serious objection to the theory that the milk had really been contaminated at the milk house. In the vicinity of Union Square and also to the east and west of this region the same set of milkmen delivered a considerable quantity of milk and served a large number of customers. Here, however, there had been no typhoid fever. I was myself much puzzled by these facts from the start and the milkman-in-chief lost no opportunity of urging them upon my attention as an insuperable objection to the milk-infection theory. At last, however, in the over-eagerness of his affirmations, he himself afforded the clew which enabled me to solve the whole difficulty. In reiterating the importance of the absence of cases upon that portion of the route near Union Square, and saying that more of the milk went thereabouts than on the hill (where the cases had occurred), he added that he knew this because he "always waited around after the train came and gave the boys several cans off the wagon" which they sold directly to the uninfected districts. Immediately everything became plain. These districts had evidently not been infected, *because they had not usually had milk from the milk house*, but had been served with fresh milk just in from Littleton. Probably only enough was taken from the train each day to serve these customers and those upon the hill who would not wait for the train to arrive next day. No more would be carried over than was necessary, because if the supply ran low more could be got in time for use, next day; and milk in August does not keep well. This milkman's route extended over the line into Cambridge, in which city he served three families. I was interested to find in one of these, a case of typhoid fever synchronous with those in Somerville. There was no other case in Cambridge anywhere near this point at that time.

One of the most interesting features of the epidemic was the indication which it afforded that in the very early, and possibly even in the early prodromal, period of typhoid fever the patient must have been discharging the germs of the disease. His case was believed by two thoroughly competent physicians who saw him, to have been well on "in the third week," on August 28th. His first hæmorrhage, so far as is known, was on the 29th, and he died September 6th. The cases first began to appear on the 16th, on which day physicians were called to five cases in Somerville; and seventeen out of the whole number of cases had their first visit from the physician on this day or one of the four following. Previous to this there had been only one case in Somerville since August 5th. It would appear from a consideration of the epidemic itself, that the milk must have been most heavily infected between the 1st and the 10th of August; and we have every reason to believe that at this time one of the milkmen was in the early stages of the disease. This is the more interesting because the great epidemics in Lowell and Lawrence in 1890–91 were apparently due to excreta thrown off in the early stage of the disease, before the patients took to their beds. The same thing was true of the epidemic in 1892 in Chicopee Falls, and also of the important epidemic in Red Hill and Caterham (Eng.) in 1879. In the present case I was told by his father that the young man had not been able to do anything at the milk house "for a week or so" before he ceased to deliver milk and went to bed; that is, not after about August 20th. The last case had its first visit from the physician on September 3d, or exactly two weeks afterwards. In other words, after this young man no longer visited the milk house the epidemic ceased. Later in September there were one or two more cases of typhoid fever in Somerville, but they proved on investigation to have been imported, having obviously contracted the disease elsewhere.

My thanks are due to several of the physicians of Somerville for their valuable assistance, especially to Medical Examiner Dr. T. M. Durell and Dr. William A. Bell.

Clinical Department.

SOME ABDOMINAL OPERATIONS.[1]

BY MAURICE H. RICHARDSON, M.D.

TUBERCULOUS STRICTURE OF THE INTESTINE.

I REMOVED a few days ago from a girl of twenty-two, at the New England Hospital for Women and Children, an unusual and interesting specimen of tuberculous stricture of the intestine. As one of the consulting surgeons, I was asked by Dr. Keller to see this patient, and, if thought advisable, to operate. The chief symptom was abdominal pain coming in violent paroxysms without apparent cause, accompanied by loud gurgling. There was great emaciation and weakness. Obstruction was not complete. Although I have seen cancer of the intestine at this early age, I eliminated malignant stricture in the differential diagnosis because of the strong tuberculous taint in the immediate family of the girl. I was prepared to resect the gut under favorable conditions, but expected to be limited to inguinal colostomy, postponing the more radical treatment until she could regain her strength. The local conditions were so favorable, however, that I performed immediate excision. The stricture was in the lower portion of the ileum, and was situated between the umbilicus and the anterior superior iliac spine. One or two enlarged mesenteric glands near the seat of disease were not removed.

Resection was rapidly performed. The joint by the interrupted Lembert silk stitch was unusually satisfactory. The line of suture was protected by gauze packing. The patient died in three days, without any evidence of peritonitis. Abundant evacuations followed almost immediately upon the operation.

I think it would have been better to relieve by colostomy the obstruction, and to wait till the increased strength of the patient should justify resection.

The specimen shows a great thickening of the intestinal walls, with dilatation, above the constriction; below, the bowel is collapsed and its walls are comparatively thin. The lumen at the point of constriction is hardly large enough to admit a probe. The bowel above was much distended by thin, yeasty fæces, which were being constantly churned up by the intestinal paroxysms. The only difficulty in suturing was caused by the great difference in the diameters of the cut ends.

[1] Remarks made before the Boston Society for Medical Improvement at its regular meeting Monday, May 22, 1892.

This is a serious disadvantage in the immediate operation; nevertheless, with care, a very satisfactory joint can be made.

GANGRENOUS AND PERFORATED VERMIFORM APPENDIX.

At the last meeting of this Society I showed a gangrenous vermiform appendix nearly as large as the small intestine. The patient has made a good recovery. I have operated since that meeting in three other cases, with one death. In the fatal case, the abdomen was opened as a forlorn hope in a general peritonitis. Death took place in twelve hours. In this case, after the first attack, a year ago, the question of operation was considered. Almost before the patient's condition could be realized, in the second attack, a general septic peritonitis had developed, with vomiting and hiccough. Had I not seen at least one such case recover, I should have declined to operate. At such times operations offer so little hope that the question arises whether a surgeon does not owe something to his art and to his own reputation; and whether his duty requires him to interfere under conditions practically hopeless. After a long and varied experience in these frightful emergencies, I believe that the recoveries which occasionally result from operations undertaken in desperate cases justify the attempt in all where death is not absolutely certain; that interference is demanded in the strongest terms, and that the effect of the probable result upon the surgeon's reputation and upon the art of surgery is unworthy of serious consideration. The brilliant recoveries, though very rare, outweigh the harm, especially in a disease like appendicitis, which the lay mind looks upon as necessarily fatal if left to itself.

In another case a gangrenous and perforated vermiform appendix was situated behind the cæcum in a sac of healthy peritoneum, not shut off by old adhesions. The appendix was shelled out by passing the finger from the brim of the pelvis underneath the cæcum towards the kidney. The perforation was found at the tip, and under the gangrenous patch was the usual fæcal concretion. In this case pus could escape only by perforating the cæcum or by breaking into the peritoneal cavity. There was a possible route towards the right flank. Drainage in these cases seems to me always exceedingly dangerous — an opinion borne out by not infrequent fatal results, whether the case be treated surgically or left to itself.

I have taken the time of the Society to show this specimen and to comment upon the case because I do not agree with the views recently expressed by several writers, that the surgery of appendicitis is being carried too far. As one of those who see the most of this formidable disease, while not as yet accepting any fixed rules of procedure — certainly not that of always operating — I cannot but be sorry to see the let-alone treatment encouraged, especially as this method is the one most agreeable to general practitioners. An enormous amount of good has been done in the past eight years by the agitation of this subject. Any relaxation of our efforts in this direction, particularly that sanctioned by high authority, is in my opinion to be regretted.

EMERGENCY HOSPITAL AT WORLD'S FAIR.—There were treated at this hospital 18,500 cases, and there were 23 deaths at the institution.

FURTHER EXPERIENCE IN THE USE OF CHLORALOSE.

BY F. GORDON MORRILL, M.D.,
Visiting Physician, Boston Children's Hospital.

A CONSIDERABLE experience has convinced me that in "chloralose" we possess an hypnotic of great value. I have prescribed it in twenty cases of insomnia, with good results in almost every instance — exceptions to be noted a little further on. Properly used in cases *uncomplicated by hysteria or alcoholism* (I have had no experience with the drug in locomotor ataxia, sonambulism or pulmonary phthisis, the presence of either of which conditions is considered unfavorable to its action), it has appeared to me to justify the claims of its discoverers: that it is safe, produces no "habit," does not require a progressive increase of dose, and is reliable in its action, that is, produces refreshing sleep attended by no disagreeable after-effects. In simple insomnia it certainly acts "like a charm," and is destined, I think, to replace chloralamid, than which drug it is more reliable.

A case which particularly impressed me was that of an old man with organic heart-trouble, whose nights were rendered wretched by dyspnœa, palpitation and fear of sudden death. A fairly large dose gave complete relief every night during the six weeks which he survived after my first visit.

In the case of an elderly lady with whom other hypnotics had failed, and who, in her desperation, had formed the habit of obtaining sleep by taking a tumblerful of whiskey at bedtime, chloralose gave quiet and refreshing nights, and eventually enabled her to conquer a most obstinate insomnia of long standing. In this instance it was necessary to abandon the whiskey and pass several sleepless nights before taking the remedy, as alcohol is distinctly unfavorable to the action of chloralose.

A young married woman, whose inability to sleep was due to her anxiety concerning the health of her only child, took chloralose in a fairly large dose (six grains), and after a good night's sleep suffered from marked inco-ordination of motion for an hour after rising. The same effects followed a repetition of the dose, and the medicine was discontinued. A distinctly hysterical attack which occurred a day or two later furnished an explanation of the disagreeable after-symptoms.

In somewhat the same category may be placed the case of an old gentleman with an enormous prostate and a very irritable bladder, whose complaints of suffering always increased to a marked degree in the presence of a certain member of his family. Here six grains of the drug produced a very peculiar effect, for after three hours of quiet sleep he awoke delirious, and tried hard to get out of bed. Being restrained from this, he crawled about the bed for an hour, and then went quietly to sleep, expressing great satisfaction next morning for so quiet and restful a night — evidently having no recollection of the alarm he had caused his attendants. The chloralose was afterwards resumed in divided dose (the second cachet of three grains being given when the effects of the first had passed), and the result was far more satisfactory than that obtained by full doses of chloralamid, which had been given as a substitute in the interval.

A fuller appreciation of mental characteristics would have led, in the lady's case, to refraining altogether

from exhibiting chloralose, and in the last-mentioned instance the divided dose only should have been given.

A brief analysis of Goldenberg's thesis (Paris, 1893) shows sixty-four cases in which the drug was used. Of the fourteen failures, eleven were cases of women. Five of them were hysterical subjects; two were alcoholics; one suffered from severe gouty pains; one was a consumptive: and one had pulmonary emphysema and a secondary heart. The cause of failure in the eleventh case is not mentioned. Three were male cases, with locomotor ataxia, paralysis agitans and nocturnal syphilitic pains respectively.

The best method of administration appears to be to give a cachet containing three grains (those made here are more convenient to swallow than the imported) an hour before sleeping-time, and repeat promptly when the time is up if no effects are obtained. In case insufficient sleep follows the first dose, it is repeated when the patient awakes. The largest dose I have given in a single night was twelve grains. As a rule, it may be assumed that three grains (repeated as above in some cases) will insure from five to nine hours of refreshing sleep in any case of insomnia which cannot be readily classed among the exceptions which resist the action of the drug. The results which I have thus far obtained certainly encourage me to persevere in giving this new hypnotic a more thorough trial. It is as certain in its action as chloral, and far safer; as harmless as chloralamid, and far surer, so far as I have been able to observe.

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.

(Concluded from No. 19, page 468.)

SUTURE AFTER LAPAROTOMY.

HOWITZ,[13] of Copenhagen, at the recent Surgical Congress held at Gothenburg, discussed the comparative value of the methods and kinds of sutures which are used after laparotomy. According to him the abdominal hernia which occasionally occur after operation are dependent upon the manner in which the sutures are applied. Three factors determine the strength of the cicatrix: (1) The nature of the uniting surfaces; (2) the manner in which they are held together, and (3) the kind of suture used. As regards (1) the incision in the linea alba is not advantageous, since the conditions required for the formation of a sound scar are not present. In order to form a strong cicatrix the opposing surfaces of the incision must be fairly extensive and smooth, they should contain only a small amount of fat, and should be in apposition without much tension. In order to secure this condition of affairs the author advises that the incision should be made about two-thirds of an inch from the middle line, passing through the substance of the rectus muscle. As regards the method of suturing, he recommends the twisted suture, such as is used for harelip. In applying the suture a slightly curved needle is used, and only a small amount of peritoneum included in the suture. The sutures are made from silkworm gut. After the operation the patient is kept in bed for three or four weeks, so as to allow the scar to become firm.

[13] Sem. Med., July 12, 1893; British Medical Journal, August 12, 1893, p. 25.

THE INDICATIONS FOR LAPAROTOMY IN ACUTE INTESTINAL OBSTRUCTION.

Schlange[14] has successfully removed by primary resection 135 cm. of intestine. The laparotomy and resection was done to relieve intestinal obstruction. In discussing the indications for operation he divides these cases into three classes: (1) When there is abdominal distention and peristaltic motion exists (hence no general peritonitis since this paralyzes the intestine) with sudden onset, or symptoms quite persistent, the case is probably one due to local trouble and one should operate. (2) With marked tympanites and no peristalsis (paralysis, general peritonitis) operation only hastens death. The most one is justified in doing is to rapidly make an artificial anus. (3) When a limited portion of the intestine is affected while the rest is normal, this section becomes greatly distended, is paralyzed. The symptoms are always violent. The patient's strength decreases rapidly. There is not diffuse peritonitis. Here laparotomy performed early is the only chance for the patient's life.

FAT EMBOLISM FROM FORCIBLE CORRECTION OF JOINT DEFORMITIES.

Fritz Colley,[15] of Marburg, has reported a case where death followed fourteen hours after a forcible straightening of both knees, with symptoms of pulmonary œdema. The patient was twenty-six years of age. The clinical diagnosis was death from fat embolism. The autopsy confirmed this. The case differs from the usual cases of fat embolism in that without any bony lesion, the rupture of the cicatricial attachment to the femur of a fatty degenerated muscle allowed enough fat to enter the circulation to cause death. Also, that as a result of the filling of the heart capillaries with fat caused such an impediment to its proper nutrition that within fourteen hours acute fatty changes were produced. These conditions would suggest that *brisement forcé* is not free from danger as it has formerly been considered. That it becomes a serious operation when a muscle which has become atrophied and fatty degenerated from disease, is torn or a bone showing conditions of fatty osteoporosis is fractured.

DIAGNOSTIC AND THERAPEUTIC VALUE OF PUNCTURE OF THE SPINAL CANAL.

Pritchard[16] has published an interesting abstract of V. Ziemssen's article on this subject. The method of Quincke, of Kiel, which was first used for the purpose of decreasing the pressure in hydrocephalus, was used by Ziemssen in several cases of tuberculous cerebro-spinal meningitis, brain tumors, etc. The spine is flexed to increase the interspace between the vertebral arches. The patient is anæsthetized. The fluid escapes with a rapidity proportionate to the pressure. The cerebral pressure was diminished by the operation. A case of tubercular meningitis was improved under this treatment. Quincke after operating twenty-two times found that the fluid reaccumulated rapidly. He found that hydrocephalic fluid contained less than 1% of albumen. Above 1% indicates that an inflammatory process is probable. Above 2% is sometimes found in tubercular exudations. He thinks puncture

[14] Berlin. Klin. Woch., 1892, No. 47.
[15] Deutsche. Zeitschr. f. Chir. 1893, xxxvi, p. 322.
[16] Annals of Surgery, 1893, vol. xviii, 235.

is indicated in acute exudations of tuberculous or serous nature. To prevent a reaccumulation of fluid he slits the dura so as to permit continual drainage into the surrounding tissues. Ewald, of Berlin, found puncture caused only temporary improvement.

THE CLINICAL COURSE, DIAGNOSIS AND STRUCTURE OF DUCT CANCERS OR VILLOUS CARCINOMAS OF THE BREAST.

Anthony Bowlby [17] has contributed a valuable paper upon this subject, and his conclusions are as follows:

"(1) In a considerable proportion of the cases there is at some time a discharge of fluid from the nipple, and this discharge may precede the development of any tumor perceptible to the patient for a period of even several years. The growths are, however, not associated with so-called eczema of the nipple, or Paget's disease.

"(2) The patients are mostly over middle-age.

"(3) The axillary glands are not usually affected.

"(4) The tumors are not of very rapid growth.

"(5) Neither the nipple nor the skin is usually retracted, but the growths are commonly situated near to the nipple.

"(6) The tumors are occasionally multiple in the same breast, and are firm and elastic, or else shotty and knotted to the touch rather than hard and nodular like a scirrhous carcinoma.

"(7) On section, the growths are seen to be encysted, and are generally darkly blood-stained, soft and friable. Sometimes they are of a lighter color, and grayish and granular on the surface. Some of the cysts are almost filled with solid growths, others contain little but blood-clot and serum. It can often be plainly seen with the naked eye that some of the cysts are formed by dilated ducts, and the solid growth can often be seen springing from the lining membrane of the latter. The cysts and the growth may be situated either in the gland or in the surrounding fat. Occasionally, the tumor may protrude through one of the dilated ducts on the summit of the nipple.

"(8) The tumors are liable to recur locally, but are not nearly so prone to affect the lymphatic glands or to disseminate as are the spheroidal-celled scirrhous carcinomas. If attention be paid to these points, I think no difficulty will be found in diagnosing these tumors from scirrhous carcinomas. Sometimes there is difficulty in separating them clinically from the cystic sarcomas.

"With regard to this the following points are worthy of attention: Duct cancers occur frequently in old women, in whom the growth of cystic sarcoma is relatively uncommon; they do not attain so large a size, nor do they grow so rapidly as do the cystic sarcomas; the cysts they form are usually much smaller than are the cysts in the latter class of growth; the discharge from the nipple is usually much more blood-stained."

THE PREVENTION OF SHORTENING AND OTHER FORMS OF MAL-UNION AFTER FRACTURE.

Keetley [18] has contributed an interesting paper upon this subject. He uses steel pins to secure the ends of the fragments of a divided bone, and the details of the method he has used are as follows:

"The instruments required are: (1) two L-shaped pins of hardened steel thickly plated with silver; (2) the patella instruments described by me in the *Lancet* for December 10, 1892, or at least the long-bladed brad-awl; (3) a pointed tenotomy knife; and (4) a flat sand-pillow. Each L-shaped pin consists of course of two arms, one cylindrical, the other flattened in a plane at right angle to the rounded arm. The cylindrical arm is seven millimetres in circumference, and has a rounded blunt point. The length is three and a half inches, that is, nearly nine centimetres. The flattened arm of one pin is three inches long, that of other being five inches. Both are one-fourth of an inch wide, about one-tenth of an inch thick, and there are notches at the edges at intervals of one-fourth of an inch. The patella brad-awl has, it may be mentioned, a blade three and one-half inches long, and both its blade and its handle are of one smooth piece of nickelled steel, the handle being made hollow for lightness.

"*Operation.* — Stringent antiseptic precautions must be used, and they are particularly easy in an operation like this, where the open wound is a puncture and nothing enters it except two or three straight and smooth pieces of plated steel. This easiness is no excuse for carelessness — it only makes neglect inexcusable. The following are the details of the operation:

"(1) Reduce the fracture under ether, breaking it down again if union has taken place recently in a bad position.

"(2) While two assistants make extension and counter-extension, adjust the fractured ends and try to ascertain the precise seat and place of fracture. Select a point in each fragment likely to be clear of the fracture, and in such a position that a straight line from it transversely perforating the bone would keep well clear of important vessels and nerves, synovial membranes, etc. In both my two cases I have been surprised to find how far it was necessary to go from the fracture in order to find a firm place in the lower fragment. The two points selected should lie as nearly as possible above one another, and not in a spiral line circling the limb.

"(3) Puncture the skin, push the brad-awl through the puncture down to the bone, use it very gently as a probe to define the position of the bone, and then bore steadily through. Take care not to break the long blade and not to perforate obliquely.

"(4) Slip the director along the awl. If the handle of the latter is in the way bend the former a little and have the skin pressed down on the bone.

"(5) Withdraw the awl, twisting and not jerking it out; keep the director carefully in position.

"(6) Pass in one of the pins through the bone and withdraw the director. Repeat 3, 4, 5 and 6 in the case of the upper fragment. Take care to bore both fragments in the same longitudinal plane.

"(7) The two pins being now in the bone, turn them into such a position that the flat arm of one lies upon, and touches the flat arm of the other. If the arms are to remain less than five inches apart the long-armed pin must lie over the other. The advantage of making the flat arms of different lengths will now be seen. The pins can be thereby fixed at any distance from two to six inches apart.

"(8) Full extension being made, and the limit demonstrated by measurement to be of proper length, lash the flat arms of the pins together with silver wire pulled taut and twisted home at the ends. See that

[17] Lancet, June 10, 1892, p. 1369.
[18] Lancet, June 10, 1893, p. 1377.

there is full tension on the pins before fixingt hem, for they have a slight elasticity. If this point is not attended to a quarter of an inch or more may be lost.

Dressings. — Iodoform gauze wrung out in sublimate solution (1 to 2000) should be placed beneath and above the external arms of the pins; the gauze should be flat and not lumpy. Over the gauze a well-rolled wood-wool pad should be placed, and all round the limb at and near the fracture there should be a sheet of absorbent wool. The whole should be bandaged firmly and evenly, firmly enough to prevent any internal extravasation. Lastly, external appliances suitable to the case should be put on. If, as in my first case, the superior fragments tend to ride forward, I use a double splint with transverse iron lips or brackets, and in all cases I should use extension."

He has used them in two cases. In one a boy of thirteen, the use of the pins prevented the slightest shortening. In the other case there was some rusting of the pins, which occasioned superficial suppuration. They were removed on the forty-third day following the operation, and the fifty-third day after the fracture. Firm union resulted without the slightest shortening.

A NEW METHOD OF DIRECT FIXATION OF THE FRAGMENTS IN COMPOUND AND UNUNITED FRACTURES.

After a careful review of all the methods which have been proposed for the direct fixation of fragments, Senn [19] brings forward a method he has devised, which consists of a bone ferrule which is applied in compound fractures. The method of preparation of the bone ferrules is as follows:

"The ferrules are made of different sizes from fresh bone obtained from the slaughter-house or butcher-shop. For the humerus and femur of the adult the femur of an ox should be selected; for children, the same bone of a smaller animal will answer the purpose. For the tibia, the corresponding bone of the animal is chosen. With a sharp saw the shaft of the bone is cut transversely, the length of the sections corresponding with the desired width of the ferrule, which will vary from a quarter of an inch to an inch. With a round file the medullar canal is enlarged until the thickness of the bone does not exceed one-sixth of an inch; in some instances a much thinner ring will furnish the necessary lateral support. If the ferrule is longer than an inch it should be perforated at a number of points in order to furnish so many avenues through which the products of tissue proliferation and the new blood-vessels can reach the tissues outside of the ferrule, and *vice versa*, and also with the intention of facilitating the absorption of bone after the fracture has become consolidated. Ferrules made of the tibia should retain the shape of the bone in order to adapt their lumen to the treatment of fractures of the tibia. Sterilization is effected by boiling for an hour or more, after which the rings are kept immersed in sublimate alcohol (1 to 1000) ready for use. Future experience may show that partial decalcification of the bone ferrule is an advantage. Should further clinical experience show that the bone is not sufficiently absorbable, such ferrule could be made of chromicized catgut."

The ferrules are applied in the following manner:

"In the treatment of compound fractures the observance of the strictest antiseptic precautions, and in the operative treatment of ununited fractures by this method, rigid aseptic measures must precede and accompany the direct treatment of the fracture. The seat of fracture must be exposed in such a way that both fragments are readily accessible. The ferrule must be large enough so that it can be slipped over the fragments without danger of breaking it. In the majority of cases the use of an anæsthetic is indispensable for the purpose of securing complete muscular relaxation and the necessary immobility of the limb not only until reduction is effected and the ferrule is in place, but until the whole dressing is applied and complete immobility at the seat of fracture has been assured. After the seat of fracture has been freely exposed, the most accessible fragment is isolated from the surrounding tissues with as little disturbance of the periosteum as possible, when the ferrule is slipped over the fragment and is pushed away from the line of fracture far enough to clear the other fragment. After reduction has been accomplished, the second fragment is engaged in the ring, which is then pushed back sufficiently far to grasp both fragments securely.

"A reliable assistant should hold the limb in proper position, as bending at the seat of fracture might break the ring. Hæmorrhage is to be carefully arrested, and if the wound is aseptic the different tissues are separately united by buried sutures. In case of infected fractures, and in fractures accompanied by troublesome oozing, free drainage must be established. Bending at the seat of fracture is prevented and absolute immobilization secured by a circular plaster-of-Paris splint, which can be fenestrated at a point opposite to the wound if the wound has been drained. Harmful pressure is avoided by interposing between the surface of the limb and splint a layer of antiseptic hygroscopic cotton at least an inch in thickness, and localized decubitus is prevented by protecting all bony subcutaneous prominences with special care.

"With a view of securing perfect immobility of the fragments as early as possible, small splints of wood or metal are incorporated in the plaster-of-Paris dressing in such a way as to form an unyielding bridge across the line of fracture, an important matter during the time required for the setting of the plaster. The limb, especially if it is in the lower extremity, should be kept suspended in an elevated position for a number of days, in order to prevent as far as possible the occurrence of œdema at and below the seat of fracture. If the wound has not been drained, and no indications for a change of dressing present themselves, the first dressing should not be disturbed until union between the fragments is sufficiently firm to prevent displacement during the second dressing. In wounds that require drainage, the dressing is changed after two to five days without interrupting the fixation splint. Should suppuration set in, the bone ferrule should not be removed until direct fixation has become unnecessary, when the sinus is enlarged, the ring cut on one side with bone forceps, and fractured on the opposite side by bending, when each half can be extracted separately. Loose fragments of bone are removed at the same time."

He draws the following conclusions:

"(1) Direct fixation of the fragments is indicated in all compound fractures in which perfect retention cannot be secured by simpler measures, and in the treatment of ununited fractures requiring operative interference.

"(2) This method is also justifiable in the treatment of certain forms of subcutaneous fractures, in

[19] Annals of Surgery, August, 1892, p. 125.

which reduction and retention cannot be accomplished without it.

"(3) Free exposure of the fragments in compound fractures secures the most favorable condition for thorough disinfection.

"(4) Perfect reduction and direct fixation of the fragments are the most reliable prophylactic measures against delayed non-union and deformity.

"(5) A compound fracture should be regarded in the same light as an injury of the soft tissues, and should be treated upon the same principles; namely, accurate coaptation of the different anatomical structures, and perfect retention by direct means of fixation, aided by an efficient external support.

"(6) Bone suture, metallic, bone and ivory nails do not furnish the necessary degree of support and immobilization in the direct treatment of fractures characterized by a strong tendency to displacement.

"(7) The solid intra-osseous splint of ivory or bone as advised by Heine, Langenbeck and Bilcher is objectionable because it interferes with the ideal production of the intermediate callus, and its spontaneous removal is beyond the absorptive capacity of the tissues.

"(8) The hollow, perforated ivory or bone cylinder devised by the author, answers the same mechanical purpose without the objections which have been charged against the solid cylinder.

"(9) The safest and most efficient means of direct fixation of oblique fractures is by a bone ferrule, which must be applied in such a manner that it surrounds both fragments.

"(10) Such a circular absorbable direct splint prevents to perfection lateral and longitudinal displacement.

"(11) Rotation of the limb below, and angularity at the seat of fracture, must be prevented by a carefully-applied circular plaster-of-Paris splint.

"(12) For fractures not requiring drainage the entire wound should be closed by buried and superficial sutures, as the bone ferrule is removed by absorption.

"(13) In suppurating wounds the bone ferrule should not be removed until direct fixation has become superfluous by the formation of a sufficiently firm union between the fragments.

"(14) The external splint should be applied in such a manner that it does not require a change throughout the entire treatment, permitting at the same time access to the wound should this become necessary.

"(15) Direct fixation of a fracture combined with perfect immobilization brings the different anatomical structures of the broken bone permanently into their former normal relations, preparing the way for the early initiation and speedy consummation of an ideal process of repair and the realization of a perfect functional result.

"(16) Should future experience demonstrate that bone is not sufficiently absorbable, the same kind of ferrules can be made of partially decalcified bone or chromicized catgut."

OLD DISLOCATION OF THE HUMERUS TREATED BY OPERATION.

Dr. A. M. Phelps[20] reports a satisfactory result, obtained by this method. The patient was an old man with a dislocation of the left humerus of several months' standing, with firm, bony adhesions. The head of the bone was exposed by an incision, removed and replaced in the glenoid cavity after this had been cleaned of the new-formed material. The patient recovered with fair motion. Dr. Phelps, in view of his experience in this case, considers that this method will give better results than the common practice of forcibly rupturing the adhesions by manipulation, followed by the attempt to reduce as in fresh dislocations.

[20] Patient shown at the meeting of the New York Academy of Medicine, Surgical Section, January 9, 1893. See New York Medical Record, 1893, vol. xliii, p. 89.

BIBLIOGRAPHY.

W. B. Coley. Treatment of malignant tumors by repeated inoculations of erysipelas. Annals of Surgery, September, 1891; Medical Record, January 14, 1893, p. 60.

M. G. Naidu. The administration of chloroform in Hyderabad. Lancet, August 12, 1893, p. 365.

Salvioli. Ueber die Todesursachen nach Verbrennung. Virchow's Arch., Bd. cxxv.

M. Sulzer. Bericht über 200 Kropfoperationen mit besonderer Berücksichtigung der End-resultate. Deutsch. Ztschr. f. Chir., 1893, xxxvi, p. 193.

George H. Monks. Unilateral laryngectomy. Annals of Surgery, July, 1893, p. 18.

I. Holmolk. Contribution to pulmonary surgery statistics. Annals of Surgery, 1893, vol. xviii, 78.

James P. Warbasse. Operations on the stomach and intestines at the Heidelberg Clinic. Annals of Surgery, 1893, vol. xvii, p. 730.

Postnikow. Gastroenterostomy in two stages. Centbl. f. Chir., 1892, No. 49.

Samuel Lloyd. Recent contributions to the surgery of the stomach. Annals of Surgery, 1893, vol. xvii, 452.

W. W. Keen. Ileo-colostomy by Murphy's button. Annals of Surgery, 1893, vol. xvii, 652.

F. Bryan Robinson. A syllabus of intestinal surgery. Annals of Surgery, May, 1893, p. 557.

Robert T. Morris. Infectious appendicitis. Annals of Surgery, October, 1893.

Arpad G. Gerster. A contribution to the surgery of the rectum. Annals of Surgery, August, 1893, vol. xviii, p. 189.

Maurice H. Richardson. A contribution to the surgery of the gall-bladder. Annals of Surgery, October, 1893.

J. William White. The present position of the surgery of the hypertrophied prostate. Annals of Surgery, August, 1893, vol. xviii, p. 152.

William R. Howard. In-growing toe-nail, its surgical treatment. International Journal of Surgery, August, 1893, p. 231.

Trnka. Ein Beitrag zur Technik. der Sehnennaht. Centbl. f. Chir., 1893, xx, s. 257. Illustrated.

W. Arbuthnot Lane. The later results of laminectomy for paraplegia due to angular curvature. British Medical Journal, December 31, 1892.

Kosima. Tuberculosis of the elbow-joint; summary of results from the Göttingen Klinik. Deutsch. Ztschr. f. Chir., 1892, Bd. xxxv, Hft. 1, 2.

Curtis B. Farquar. Cases of bone implantation and transplantation for cyst of tibia, osteomyelitic cavities, etc. American Journal of the Medical Sciences, 1893, vol. cvi, p. 30, and New York Medical Record, 1893, vol. xliii, p. 473.

William Waldo Van Arsdale. Ossifying hæmotoma. Annals of Surgery, July, 1893, vol. xviii, p. 8.

Thomas S. K. Morton. Metatarsalgia. Annals of Surgery, 1893, vol. xvii, p. 680.

Frank Hartley. Intracranial neurectomy of the fifth nerve. Annals of Surgery, May, 1893, vol. xvii, p. 511.

George R. Fowler. The present state of knowledge as to carcinoma. Annals of Surgery, 1893, vol. xvii, p. 478.

Gleiss. Suturing of nerves. Berträge zur Klin. Chir., 1893, Bd. x, Hft. 2.

Rydygier. Ein neue Methode der temporären Resektion des Kreuzsteif-sbeines behufs Freilegung der Beckenorgane. Centbl. f. Chir., 1893, Bd. xx, p. 1. Illustrated.

Royal Whitman. Fracture of the neck of femur in childhood; differential diagnosis from separation of the epiphysis. Illustrated. New York Medical Record, 1893, vol. xliii, p. 227.

Viktor Wagner. Die Aseptic in der Kriegschirurgie. V. Volkmann's Samml. Klin. Vorträge, N. F., 1893, 65-66.

Maurice H. Richardson and J. G. Mumford. Dry aseptic operating. American Journal of the Medical Sciences, June, 1893, p. 654.

A MEDICAL STUDENTS' PARADE. — The medical and dental students of Philadelphia had a torchlight parade last week, in which some fifteen hundred men took part.

Reports of Societies.

NEW YORK STATE MEDICAL ASSOCIATION.

TENTH ANNUAL MEETING, NEW YORK, OCTOBER 9, 10, 11 AND 12, 1893.

(Concluded from No. 19, page 472.)

SECOND DAY (WEDNESDAY). — MORNING SESSION.

DR. WILLIAM H. ROBB, of Montgomery County, read a paper entitled,

TREATMENT OFTEN INDICATED AFTER TRACHELORRHAPHY.

The hygienic treatment he considered very important, and mercury and iodide of potassium he had found very useful in unloading the portal circulation and improving the nutrition of the uterus. Chronic endometritis is the most common affection met with, and it is best treated by dilatation, curettage and packing the uterus with iodoform gauze. Imperfect union of the torn surfaces after trachelorrhaphy sometimes results in a chronic enlargement of the uterus.

DR. W. D. GRANGER, of Westchester County, sent a communication on

VOLUNTARY COMMITMENT OF THE INSANE TO ASYLUMS.

He said that the modern idea was to make asylums hospitals in which the treatment might be individualized as much as possible. The law of New York State now permits insane persons to voluntarily commit themselves to family asylums, provided that their mental condition is such that they appreciate what they are doing. They are at liberty to leave the asylum at any time.

DR. GUSTAVUS ELIOT, of New Haven, Conn., read a paper on

THE TREATMENT OF ENTERIC FEVER.

He considered absolute rest of so much importance to the safety of the typhoid fever patient that he advised the physician to withhold his permission for a patient to leave his bed with any fever if there was the slightest doubt as to the diagnosis. The patient with enteric fever should be kept perfectly quiet, both in body and mind, not only during the whole course of the febrile stage, but for at least one week after the morning and evening temperature had reached 99°. The treatment he believed to be the most efficacious was at the beginning to administer seven to ten grains of calomel on alternate days for four doses, and then follow this by giving carbolic acid or iodine in very weak solution. This treatment improves all the symptoms and actually shortens the disease.

DR. GEORGE DOUGLAS, of Chenango, favored the calomel treatment at the outset, but would not give more than two or three doses. He did not approve of the free use of alcoholic stimulants in this disease.

DR. WILLIAM FINDER, of Rensselaer County, said he had unbounded faith in sulpho-carbolate of zinc as an antiseptic and astringent.

DR. JOHN H. MARTIN, of Otsego County, employed very much the same treatment as that described in the paper. He fed his patients well, however, from the outset, and was entirely opposed to the administration of alcohol in typhoid fever.

DR. E. R. SQUIBB explained that the probable benefit derived from the calomel lay in the fact that, when taken into the stomach, calomel is changed into an albuminate, and afterwards slowly converted into the bichloride, which is so well known as an antiseptic. On this account, the calomel should be given dry on the tongue, and on an empty stomach, for, if much diluted, it is not so promptly and thoroughly converted into the albuminate.

AFTERNOON SESSION.

SIR JAMES A. GRANT, of Ottawa, Canada, read a paper entitled

RARE FORMS OF GOUT AND RHEUMATISM,

in which he narrated the history of several cases, among others, one of a young girl who had all the usual symptoms of perityphlitis, until one day the joints of the upper extremities were attacked with acute articular rheumatism, when the abdominal symptoms rapidly subsided. This he was inclined to look upon as a case of rheumatism affecting the intestinal walls. Haig, of London, had reported such cases.

DR. DONALD MCLEAN, of Detroit, in a paper entitled

SURGICAL AND PATHOLOGICAL MEMORANDA,

spoke, among other things, of ununited fractures, and said that an extensive experience with such cases had led him to believe that in a large proportion of cases the cause of the non-union was to be found in excessive violence at the time of the fracture. He showed the aortic compressor which he uses to control hæmorrhage when amputating at the hip-joint, and expressed himself as most decidedly in favor of this method, which he considered even superior to Wyeth's.

DISCUSSION ON THE TREATMENT OF APPENDICITIS.

DR. FREDERIC S. DENNIS, of New York County, opened the discussion, propounding the following questions:

Question 1. — What proportion of cases of appendicitis end in resolution?

Question 2. — What class of cases require immediate operation?

Question 3. — What class of cases do not require immediate operation?

Dr. Dennis said there were several different varieties of inflammation occurring in the region of the cæcum, and it is now generally accepted as a fact that about fifty per cent. of all such cases go on to resolution, and only about eleven per cent. show a tendency to relapse. He did not approve of operative interference in appendicitis except the symptoms are decidedly acute, and remain unabated for forty-eight hours. The operation should not be looked upon lightly; it is by no means easy; the length of the incision makes ventral hernia a very common sequela, and the fact that eminent practitioners frequently err in the diagnosis should make one slow to resort to operation without the best of reasons for so doing.

DR. J. W. S. GOULEY, of New York County, took the same position. He cited several illustrative cases taken from his own experience, to show that many cases presenting urgent symptoms, still recover without operation.

DR. MCLEAN spoke of the perplexing nature of the questions propounded, and the heavy responsibility which they carried with them. He also referred to a

number of cases showing how frequently these inflammations terminate in resolution, and also one as a lesson to those who were inclined to look upon the operation as one of but little gravity.

DR. JOSEPH D. BRYANT, of New York County, said if the fever, tenderness and tympanites continued after three days, and especially if there was rigidity of the rectus muscle, he would advise operation. He considered the presence of this muscular rigidity a more reliable guide than the temperature. He stated that seventy per cent. of all males have a foreign body in the vermiform appendix, while this condition is present in only about forty per cent. of females. As this is about the proportion in which appendicitis affects the two sexes, it would seem that the presence of a foreign body had much to do with the occurrence of the appendicitis. When perforation occurs, the symptoms are usually quite acute, and indicate the need of immediate operation. The "McBurney point" cannot be considered as characteristic of appendicitis, for it has been found in other conditions, and, moreover, no such fixed point can represent approximately the position of the *caput coli*, which is now known to be situated not infrequently down in the pelvis, or high up behind the colon.

DR. WYETH, of New York County, was in favor of an early resort to an exploratory operation, for all the disasters he had seen in this department of surgery had been due to delay. Again, in the early operations, there is less danger of ventral hernia.

THIRD DAY (THURSDAY). — MORNING SESSION.

DR. DOUGLAS AYRES, of Montgomery, read a paper entitled,

THE MALE CATHETER, WITH SOME OBSERVATIONS UPON THE PROPER MODE OF INTRODUCTION INTO THE BLADDER.

The silver catheter is his main reliance, because its exact position in the urethra is so much more easily determined. The patient should be recumbent, with the thighs drawn up and well separated, and the shoulders raised. The introduction is sometimes greatly aided by pressing down the soft parts over the pubes, thus relaxing the suspensory ligament.

DR. GOULEY exhibited a bronze model of the catheter found in the ruins of Pompeii. It had the sigmoid form generally thought to have been invented at a much later period; it is distinctly conical, and had a single eye near the vesical end.

Dr. Gouley also exhibited a number of catheters of American make, which he claimed had a finer finish than those of foreign manufacture.

DR. WILLIAM FINDER, of Rensselaer County, in a paper entitled

RESEARCHES ON THE EFFICIENCY OF VACCINIA AFTER TYPHOID FEVER,

said that from 1874 to 1880 small-pox was almost epidemic in Troy, and at this time he first noticed that persons that had recently been sick with typhoid fever could be vaccinated with the greatest ease, and comparing them with others who had also been previously protected in their childhood by vaccination, he found that typhoid fever seemed to possess the power of eliminating from the system the protection produced by vaccination. It is his practice now to vaccinate his patients after recovering from typhoid fever. He had hesitated to present this theory until he had made a great many observations, and could verify his position beyond a doubt; but opportunities of this kind are not very frequent, and finding that some observations made some years later were confirmatory of the first ones, he had decided to ask others in the profession to continue these observations, that the correctness of this theory might be determined.

DR. H. ERNST SCHMID then read an entertaining and very suggestive paper entitled

REFLECTIONS ON THE NEED OF CLOSE OBSERVATION OF DISEASE, AND UPON THE VALUE OF HYGIENIC THERAPEUTICS.

He showed that some of the seemingly miraculous diagnoses of quacks were easily explained by a habit of exceedingly minute and rapid observation.

DR. DARWIN COLVIN, of Wayne County, reported a case of

PUERPERAL BLINDNESS,

with a view to showing the action of venesection, both prophylactic and curative.

DR. T. J. MCGILLICUDDY, of New York, said he had had five cases of such blindness occurring with puerperal eclampsia, yet all had completely recovered without resort to bleeding.

Dr. McGillicuddy then read a paper entitled,

A PLEA FOR THE NON-OPERATIVE METHOD OF TREATING DYSMENORRHŒA, PELVIC INFLAMMATION AND PELVIC ABSCESS.

He thought much good could be accomplished by the free use of hot water, both by mouth and by rectum, thus stimulating the portal circulation and promoting the absorption of exudates.

A number of other papers were contributed, but most of them were read by title.

The following communication was ordered sent to the American Medical Association, in answer to its circular letter inquiring as to the advisability of amending the Code of Ethics:

"In reply to the notice that the American Medical Association had requested the State medical organizations in affiliation with that body to express their wishes in reference to any changes in the Code of Ethics, the New York State Medical Association has to state that it has made that code one of its foundation stones, and that it is entirely opposed to any alteration therein. This is the result of a full reconsideration of the subject, and after an experience of ten years of organization under the code."

Dr. Thomas D. Strong, of Chautauqua County (fourth district), was elected President for the ensuing year; and Dr. Isaac de Zouche, of the first district, Dr. John C. Benham, of the second district, Dr. Homer O. Jewett, of the third district, and Dr. John D. Rushmore, of the fifth district, were elected Vice-Presidents.

"THE MEDICAL PROFESSION" IN ENGLAND. — In the official census reports of the Registrar-General's office of England, the medical profession, which in legal language means only medical practitioners on the Register, is made to include dentists, dental-apparatus makers, medical students, assistants, midwives, nurses, and invalid attendants, "*as well as sundry other persons more or less directly connected with medicine.*"

THE BOSTON

Medical and Surgical Journal.

THURSDAY, NOVEMBER 16, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

Subscription Terms: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 Washington Street, Boston, Mass.

THE LATE SIR ANDREW CLARK.

Dr. Andrew Clark was one of the indefatigable workers of this age. His private practice was large, his *clientèle* influential. His contributions to medical journals, though somewhat desultory, would fill a large volume, and most of these writings contain new facts and possess a permanent value. He was always a favorite writer. He was a master of good style. Among his contributions we may specify, as containing much original observation and investigation, his Lumleian lectures on Dry Pleurisies; his exhaustive studies on Fibroid Phthisis; papers on Neuræsthenia, on the Hemoptysis of Aged Persons, on Tuberculous Sputa, on the Anæmia and Chlorosis of Girls, on Disease of the Valves of the Heart, etc. In 1891, he began a course of clinical lectures on Common and Functional Diseases, completed last year, which attracted wide attention and has been of service to the cause of medical education. These lectures were of great use in showing students his own methods of seeing patients, and his own way of eliciting the truth as to their case and wants.

Dr. Clark was an eminently practical man, and his almost intuitive faculty of getting at the basic facts of a case and analyzing them on common-sense principles, made him much sought after as a consultant. It was always his aim, if possible, to meet causal indications, but, failing in this, to bring to every case an adequate understanding of the physiological principles applicable to the removal of the conditions imperiling life. He insisted especially on attention to all the minutiæ of the hygiene of patients — food, drink, sleep, exercise, etc.

Dr. Clark was associated with the London Hospital from 1854, about which time he came to London for the sole purpose of studying pathological histology (and with no intention of engaging in the practice of medicine), and helped create the great medical school now attached to the hospital. For his services in connection with this medical school he was honored by an ovation and a presentation July 15, 1889.

Dr. Clark labored to bring up the medical societies of London, and especially the Clinical Society of which he was a favorite member, to the highest standard of efficiency, through diversity of inquiry, community of work, unity of purpose and severity of procedure. Not soon will be forgotten by those who were present the golden words of his presidential address delivered at the Clinical Society of London, January 26, 1883, a portion of which may be appropriately quoted here:

"In the work of the younger members of our profession I see, or at least I think that I see, greater care, patience and accuracy in observation, a more rigorous fidelity in the record of therapeutical experiments, wiser caution in speculation, graver deliberation in judgment, a growing frankness in the confession of oversights and errors, increasing severity in the siftings and testings of their own conclusions, a readier effacement of the personality in the work, less unseemly eagerness for mere priority of publication, a deepened sense of the responsibilities of premature speech and writing, a rapidly abating bitterness in the conflicts of opposing views, a more robust and manlier spirit of scientific life, and less reluctance in making admission that there is no unconditional truth in the results of our inquiries — no finality in our finished work, no creed in medicine. But the Society has done more than train good workers; it has repressed bad workers. For one competent and conscientious worker there are ten who are incompetent and unconscientious, and who in divers ways hinder our progress and spoil our present possessions. Intolerant of the patient and painful toil of the true worker, acute in power of superficial observation, gifted with a certain showy versatility, quick at catching hold of new ideas, ingenuous in guessing, crude in experiment, loose in therapeutic trials, hasty in speculation, strong in dogmatic assertions, accomplished in the transfiguration and use of other men's work, finding what they want wherever they seek it, unhindered by difficulties, facile in speech, ready in writing, thirsty for notice, such men, now, alas, not uncommon in medicine, beget papers so quickly that they can have no necessary relation to time, observation or thought, and flood our literature with their unworthy if not unveracious lucubrations. The favorite hunting-ground for such men is therapeutics, and their favorite sport is the catching of remedies, the putting of them to new uses, and the setting forth of their successful results. These men discern no difficulties and have no failures; they can illustrate their successes by scores of cases, and explain them by the most ingenious theories. There is scarcely any limit to the extent and variety of their achievements, and as they flaunt along in the fulness of self-satisfaction, they look down with pitying condescension upon those in the straight and narrow way who conscientiously toil with small success in seeking after truth, but who, nevertheless, missing the praise of men, find strength and solace in their favored search."

His introduction to the discussion on "Cases of Valvular Disease of the Heart, known to have Existed for over Five Years without Causing Serious Symptoms" — a discussion which took place in the Section of Medicine at the annual meeting of the British Medical Association in 1886 — will be recalled as an important and valuable contribution to practical medicine.

As President of the Royal College of Physicians,

and thus the official representative of the profession in England, Sir Andrew was most kind and hospitable to medical men from other countries visiting London, and to none more so than to our countrymen. Any one who had the privilege of knowing him in his own home could not fail to be impressed by the amount of systematic work which he accomplished in the twenty-four hours.

At the funeral, which recently took place in Westminster Abbey, Mr. Gladstone was the chief pall-bearer. The occasion was an impressive one. The wise and eager physician borne to his last resting-place at the age of sixty-seven by the distinguished and eager statesman at the age of eighty-four, whom as friend and physician, he, the younger man, had so often and so long shielded from the consequences of his own restless impetuosity. It would have been a distinct gain for the profession had some one been able to do for the physician what he himself had done for so many other well-known men. For Sir Andrew, at the age of sixty-seven, was still, as years count in England, a young man.

VERTICAL HANDWRITING.

THE relation between one's penmanship and spine does not at first appear to be very close; but the direct and important hygienic effect of the position of the body required in one or another style of penmanship is well brought out by the statement and illustration of Mr. Witherbee in a recent paper. In his "Argument for Vertical Handwriting"[1] he adds to the plea for the more legible vertical style of writing, a forcible statement of the important effect upon the child's health and figure which a more rational handwriting entails.

The Vienna Commission to investigate the cause of the increase of spinal curvative and ocular trouble among school children reported that the chief factor was sloping handwriting and the faulty positions necessitated by it.

The vertical script is easier to read, easier and quicker to write, as it requires a shorter distance for the pen to travel in making each letter; for the mathematical reason that the perpendicular of a right angled triangle is shorter than the hypothenuse. There is less strain upon the eyes as the position of the body faced squarely to the desk brings both eyes at an equal distance from the paper. With the lateral position taught in most of our schools the pupil most either twist the head to one side, adding to the spinal bend, or strain the accommodation of the eyes to unequal foci.

The specimens of writing and photographs which are reproduced are most telling arguments for the justice of the plea, and aside from the arguments as to ease of teaching or reading or the elegance of appearance, the simple fact that vertical writing puts the pupil in a correct position as regards the spine and the eyes is sufficient grounds for its adoption in our school systems.

[1] Popular Science Monthly, November, 1893.

MEDICAL NOTES.

BEQUEST FOR A NEW HOSPITAL FOR NEW YORK. — The will of the late Mrs. Mary March, after giving $10,000 each to Bellevue Hospital and the Louise Home of Washington, leaves the remainder of the estate, which is valued at nearly a million dollars, to Grace Church, in New York, for the erection of a hospital, to be known as the John Payne March Memorial Hospital, for the relief of the sick, aged and indigent in Grace Church parish.

DEATH OF DR. MONCRIEFF. — The report of the probable death of Dr. David Scott Moncrieff, which was received during the summer, has been confirmed by the United States Minister to Japan, who reports that the body of Dr. Moncrieff has been found at a place called Vingov, on the Saghalian coast of Siberia, whence it was sent to Alexandrovski. He was sent to Siberia, to study anthropology, by the Peabody Museum of Harvard University, and was drowned when out sailing.

THE ABOLITION OF THE OFFICE OF CORONER. — At a meeting of the Medico-Legal Society held on November 8th, Clark Bell, of New York, Judge Abram H. Dailey, of Brooklyn, Theodore H. Tyndal, of Boston, Wyatt Johnson, M.D., of Montreal, Judge S. G. Garrison, of Camden, N. J., H. W. Mitchell, M.D., of New York, Morris Ellinger, Esq., of New York, were appointed a committee of seven to prepare a memorial to be presented to the Legislature of the State and to the approaching Constitutional Convention, favoring: (1) The abolition of the office of coroner in the State of New York; (2) the adoption of appropriate legislation and changes in the Constitution of the State that would remedy the defects in the existing system; and (3) brief reference to the labors of this body during the past years for the attainment of this result, and the recent action of the New York *Herald* and other journals and the Grand Jury of New York County upon the subject.

ROYAL OBSTETRIC FEES. — Dr. Playfair, who recently attended the Princess Marie, of Roumania, in confinement, was presented by the king with a gold snuff-box and the insignia of a Grand Officer of the Order of the Crown of Roumania, in addition to his fee, which is said to have been £2,000.

A PHYSICIAN'S GIFT TO SAN FRANCISCO. — Dr. Levi C. Lane, of San Francisco, has presented to the city of San Francisco a large building with two wings, each two stories high, which he has had built for a fully equipped hospital, to be used as an annex to the Cooper Medical College of that city.

PHILADELPHIA MATERNITY STATISTICS. — The figures given in the report of the Philadelphia Maternity Hospital add another proof of the value of lying-in

hospitals and obstetrical cleanliness. During the last hospital year there were 132 cases treated, with two deaths, one from phthisis and one from chronic nephritis. Three children were still-born and of the 134 born only five died. In the last four years, with 565 deliveries, no patient has died from preventable causes.

Medical Students in Germany. — The total number of matriculated students in the universities of the German Empire in the summer semester of 1893 was 28,053, of whom 8,838 were students of medicine. The number in the corresponding part of the foregoing academic year was 8,414, showing an increase of 424 or 4.8 per cent. The number of foreign medical students was 474.

Women Physicians in Russia. — According to Dr. Heizenstein, of St. Petersburg, there are about seven hundred women physicians in Russia. Their position is steadily becoming better and already many of them hold important public appointments to hospitals and almshouses. A large majority of them are native Russians, about twenty-five per cent. are Jewesses and the remainder of various Slavonic races.

BOSTON AND NEW ENGLAND.

Small-Pox in Boston. — During the last fortnight five cases of small-pox have occurred in Boston among recent immigrants due to infection during the voyage from Liverpool on the Cunard Steamer *Catalonia*. A case of small-pox occurred during the voyage but as all the passengers had been vaccinated they were allowed to land. A few days later two cases of small-pox were reported, both patients having been steerage passengers. Further inquiry has shown that one of these men, at least, washed his arm immediately after being vaccinated thereby making his protection useless. No new cases occurred until November 12th when three patients were reported from South Boston. It seems that a young girl of thirteen years who was a steerage passenger on the *Catalonia* went at once to live with her sister in South Boston. She was taken ill the next day but was not attended by a physician. Later, when she was convalescent, three others of the family were taken ill with what proves to be small-pox. All the patients have been taken to the hospital and the well members of the family are quarantined in their house.

Diphtheria in Lynn. — An outbreak of diphtheria has occurred at the Children's Home of the Lynn Poor Department. For some time the Home has been overcrowded and without sufficient means of isolating sick children. Of the twenty-five inmates, seven are already ill and one has died. An unoccupied house has been secured for the use of the children not yet ill, and the City Government has voted the money needed to finish the improvements at the Home.

Bequests for Medical Purposes in Memory of Dr. Hunt. — By the will of the late Mrs. Mary C. Hunt, of Hartford, Conn., widow of Dr. Ebenezer K. Hunt, $25,000 is left for the sole use of the Medical School of Yale University. Provision is also made for erecting a building in Hartford for the use of the Hartford City Medical Society as a memorial to Dr. Hunt.

Maine General Hospital.—At the annual meeting of the trustees of the Maine General Hospital held last week, the report of the resident physician and superintendent showed a total of 1,069 patients treated during the past year, 221 of them being free patients. The income the past year was $3,915.22 less than the expenses. The total amount expended for the treatment and care of free patients was $18,327.08 against 13,791.78 last year.

Miscellany.

THE RESULTS OF TOO MANY MEDICAL SCHOOLS.

In his inaugural address at the opening of the four years' course of study in the Medical Department of the University of Pennsylvania, Dr. William Pepper reviewed the progress toward higher medical education in this country. He said:

"Much of the evil of a debased medical education standard in this country has come from the reckless distribution by State legislatures of charters and degrees conferring privileges to new and imperfectly equipped medical schools. . . . In 1877 there was an average of one medical school in the United States to every 477,392 inhabitants, while in Germany or Great Britain there was one to one and three-quarters of a million population. In the twelve years from 1878 to 1889 inclusive, there were sixty new medical schools established. Fortunately they are apt to be short lived. At present I have been able to demonstrate the existence of only 140 or one to 440,150. In every other country the ratio has increased in the opposite direction. It cannot be maintained that the sparsely settled state of our country justifies or explains this condition. In Brazil there is now but one medical school for every 7,001,167 inhabitants; and in Russia but one for every 14,403,317; while in New York State, with 6,000,000 population, there are fourteen medical schools, or one for every 428,418; in Missouri, with 2,679,184 population, there are thirteen, or one to every 206,091; and in that vigorous community of Ohio, numbering 3,672,316, there are, I believe, in actual existence, no less than nineteen medical schools, or one to every 193,279.

"The effect of these numerous small medical schools upon medical training and the medical profession at large can only be harmful. A more remote but no less important effect upon the community at large is very properly brought to notice. Medical education no longer does consist, and never should have consisted, in the reading by the professor of systematic courses of lectures to bodies of students which might number 2,000 as well as 200. A certain amount of such systematic instruction is retained, and we hold that it answers a useful purpose. But the broad basis of modern medical education is the careful training of the individual student at the bedside and in the laboratory.

"There are branches of study, like Greek or mathematics, which may be studied as well, granted a true teacher and the necessary books, in a small village as

in a metropolis. But no excellence on the part of the teacher can atone to the student of medicine for the want of the extensive and varied experience with all forms of disease and injury only to be acquired in the hospitals and dispensaries of a great city. Nor is it without importance, for both the public and the profession, that side by side with this obvious evil of excessively numerous medical schools comes the inseparable but more insidious danger of pauperizing the community by a superabundance of free medical service. Each medical school inevitably desires the most liberal use of hospital and dispensary facilities as attractions to draw students, and as a basis for practical instruction; and when, as is so common among us, these schools are in excess of the needs of the community, or are in towns too small for the purpose, the eager desire for ample clinical material is gratified at the expense of the local profession, and of the self-respect of a considerable portion of the community."

MECHANICAL VIOLENCE IN THE TREATMENT OF DIPHTHERIA.

At this time of renewed and enthusiastic study as to the nature of the infection of diphtheria, when diagnosis is aided by cultures taken directly from the patient's throat, and when the treatment is so apt to be made too purely local, it is well to consider the effect of mechanical violence upon the throat.

Dr. J. R. Culkin,[1] of Rochester, calls attention to this subject in a recent article, in a spirit of fairness and common-sense. After speaking of the various types of the disease, and the course of systemic infection, he says:

"The majority of the profession believe that diphtheria is a germ disease, and that the Klebs-Löffler bacillus is probably the cause of it. The experiments carried on by various bacteriologists confirm this belief, but they are not as yet numerous enough to enable us to say that it is so beyond doubt.

"In considering the local effects of mechanical violence to the throat, we will do well to have in mind the following facts:

"(1) That we probably have in the throat pathogenic germs ready to invade every area laid bare of epithelium.

"(2) The poisonous ptomaines are more readily absorbed by a raw and bleeding surface than by one covered by epithelium.

"(3) That a portion of the involved tissue is already necrotic, another portion nearly so, and the area surrounding those portions is acutely inflamed.

"(4) That it is impossible to render by any means known to us a diphtheritic throat antiseptic.

"The numerous crannies and folds in the mucous membrane of a swollen and diseased throat defy the searching of a swab which, though saturated with antiseptic or caustic solution, soon becomes covered with mucus or bits of the necrotic membrane.

"The advantage gained in most cases is more than balanced by the fatigue to the child, the irritation and unavoidable mechanical violence to the throat which opens out a new bleeding point for fresh absorption of ptomaines, a new entrance of bacilli. The injuries resulting from compression of the tensely swollen glands about the jaw in severe cases, when the mouth is held forcibly open are not to be disregarded. Empty lymph channels absorb poison and convey it more rapidly than full ones — and vomiting makes empty channels.

"Important as are the cleansing and disinfecting of the throat, the rational side of the question is often overshadowed by the desire to destroy a bit of membrane and a few germs. It should be always remembered that the condition of the patient with diphtheria is one of acute septicæmia, in which the maintenance of strength, absolute quiet and nourishment is of prime importance. Our first object should be to save the child, not to kill the germs."

[1] New York Medical Record, October 14th.

LONG SUSPENSION OF NORMAL RESPIRATION.

In the October number of the Virginia *Medical Monthly* Dr. R. K. Smith reports a most unusual case of prolonged artificial respiration.

The patient, a man of twenty-four, had been ill for three days with slight headache and febrile temperature. On the fourth day he complained of severe headache, and rapidly became unconscious, with loss of reflexes and slow stertorous respiration (five or eight times a minute). The respiration ceased one hour after the patient became unconscious. Artificial respiration was begun and stimulants given subcutaneously. The pulse (84) continued good, as did the capillary circulation, but there was no attempt at normal respiration.

The following day the patient was cold, the pulse very weak (76), the eyes sunken, with dilated pupils. The pulse gradually failed, but the artificial respiration was carried on till the heart ceased to beat, which was thirty-eight hours and a half after normal respiration ceased, during which time about 46,000 forced breathings were accomplished.

The autopsy showed a purulent lepto-meningitis, with effusion into the ventricles. "The special features of interest were the mild symptoms and noticeable absence of pain up to the time the patient became unconscious; the cessation of respiration while the cardiac functions remained comparatively unimpaired, and the length of time the heart continued to beat under artificial respiration. What started as a demonstration to a young medical student became an experiment and finally a duty."

Correspondence.

[From our Special Correspondent.]

PARIS LETTER.

PARIS, November 2, 1893.

MR. EDITOR:— *Vive la Russe!* Had I been born in St. Petersburg with many consonants to my name, I might now be an honorary member of any medical society in Paris; but as I was not given Gilbert's privilege of belonging to other nations, I can only send you an outsider's account of the present *entente cordiale*, as it affects the medical profession. Even science has felt the hot joy of affection the last two weeks. The medical press of Paris set on foot the banquet in honor of the five surgeons from the Russian squadron who were in Paris. But this was not enough; and the invitation was extended to all the Russian physi-

cians and scientists of any standing in Paris. The dinner was given at the Grand Hotel, and over two hundred physicians were present. The hall was lavishly decorated; but everything paled before the glowing tributes of the after-dinner speakers. Professor Cornil presided, while round him were some of the best known medical men of Paris. The Minister of War furnished a band of music and toasts were drunk to everything Russia in the Russian manner. The greatest enthusiasm was reached when Dr. Botkin, a young Russian physician and ensign, rose at the close of the banquet to thank the guests for having applauded his father's name, and in a voice trembling with emotion said, "I drink to the health of France — to the glad union of two sister nations — a union which no obstacle can prevent; for it would be annihilated with the same ease with which I break this fragile crystal glass." Suiting his action to his word, he called forth such emotion from all present that he was lifted from his chair and carried about the room on the shoulders of his friends.

Dr. Aristoff of the Russian squadron being present at a meeting of the Anthropological Society, the members rose in a body and made him a member by acclamation! And so it goes.

The Paris Surgical Society celebrated its fiftieth anniversary on October 25. M. D. Mayolin, one of the founders of the Society and its oldest member was the recipient of the medal struck for the occasion. Among the invited guests present were Spencer Wells, Thiriar, Boeckel and Reverdin. Telegrams and letters of congratulation were received from Billroth, Albert, and various medical societies of Europe. An excellent address upon the history of the Society was given by the Secretary, Dr. Charles Monod, in the large ampitheatre of the Medical Faculty. In the evening a very pleasant banquet closed the ceremonies.

Naturally much interest has been felt in the appointment of successors to Charcot in the various chairs he held. M. Brissaud has been delegated to take charge of the service at the Salpêtrière for a year until a permanent successor is appointed to the chair of diseases of the nervous system. At the Academy, M. Potain has already been appointed to the vacancy.

One of the recent meetings of the Academy was devoted to an interesting discussion of the regulation requiring notice of all cases of contagious disease be sent to the official boards. Each disease was voted upon separately and the list finally approved as filling all the requirements is as follows: Cholera and choleraic diarrhœa, yellow fever, plague, variola, varioloid scarlatina, miliary fever, diphtheria including croup and membranous angina, typhoid fever, typhus, dysentery, puerperal infection, ophthalmia neonatorum. Measles was rejected from the list by a vote which lacked but three of being unanimous against considering it sufficiently contagious to be admitted.

The death of Professor Leon Le Fort is another loss to the medical profession of Paris. He is the tenth member of the Academy to die this year. He died suddenly and quite unexpectedly the day after presiding as Vice-President at the Academy. His career though short had been brilliant. Interne in the Hospital at the age of twenty-four, he had risen rapidly and soon became full professor. Had he lived he would have been President of the Academy the coming year. He served with credit in the Italian campaign and always retained an interest in military surgery and was commissioned by the Government to study the military hospital system of Germany, Austria and England for the benefit of the French army. His work as prosector in the medical school was unusually brilliant. He was personally a man of attractive cordial manner, of a quiet but determined character.

Bicyling is now all the fashion; and the roads in the Bois are lined by cyclists in all the varied costumes which Parisian taste can suggest. Silk tights with short flounces about the hips are favorite and attractive costumes among the women who very sensibly discard long skirts for riding.

The health of Paris remains very good. A small outbreak of choleraic disease in the north of the city has been found due to wells contaminated by sewage. S. E.

METEOROLOGICAL RECORD,

For the week ending November 4, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather.*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..29	30.08	45	49	41	62	49	56	S.W.	W.	12	15	C.	C.	
M..30	30.40	40	46	34	66	50	58	N.W.	N.W.	8	19	C.	O.	
T..31	30.43	37	44	30	53	53	53	N.W.	N.W.	12	2	C.	C.	
W.. 1	30.35	46	58	35	54	60	57	S.W.	S.W.	10	15	F.	C.	
T.. 2	30.19	54	65	43	67	75	71	S.W.	S.W.	17	11	C.	C.	
F.. 3	30.00	59	68	50	81	70	76	W.	W.	16	9	F.	C.	
S.. 4	30.12	43	48	38	78	96	87	W.	N.	11	7	O	R.	.43
☞	30.52		54	39			65				*			.43

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 4, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	675	278	19.50	12.15	4.95	1.35	9.30
Chicago	1,438,000	—	—	—	—	—	—	—
Philadelphia	1,115,562	—	—	—	—	—	—	—
Brooklyn	978,394	326	106	15.50	13 33	2.48	1.55	8.06
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	188	60	15.90	20.14	3.71	2.12	7.95
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	91	24	22.89	14.17	4.36	9.81	4.36
Cincinnati	305,000	143	32	16.49	17.46	4.85	3.88	7.76
Cleveland	260,000	67	—	22.20	4.44	1.48	1.48	14.80
Pittsburg	265,709	81	33	14.76	12.30	—	2.46	1.23
Milwaukee	250,000	87	46	22.61	17.85	9.52	3.51	9.52
Nashville	87,754	25	9	8.00	4.00	8.00	—	—
Charleston	65,1o5	45	14	13.33	2.22	6.66	2.22	—
Portland	40,000	14	1	21.42	7.14	—	14.28	—
Worcester	96,237	35	15	20.00	20.00	—	5.72	11.44 *
Fall River	87,411	34	14	23.52	20.58	20.58	—	2.94
Lowell	87,191	26	10	23.10	7.70	3.85	—	7.70
Cambridge	77,100	23	10	21.75	4.35	13.05	4.35	—
Lynn	62,656	27	8	7.40	3.70	—	—	7.40
Springfield	48,684	10	2	10.00	—	—	—	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	15	6	6.66	13.33	—	6.66	—
Holyoke	41,278	—	—	—	—	—	—	—
Salem	32,233	11	4	—	—	—	—	—
Brockton	32,140	6	2	—	—	—	—	—
Haverhill	31,306	9	3	33.33	—	11.11	11.11	—
Chelsea	30,264	8	1	—	—	—	—	—
Malden	29,394	8	4	12.50	25.00	—	—	—
Newton	27,556	6	1	—	16.66	—	—	—
Fitchburg	27,146	—	—	—	—	—	—	—
Taunton	26,972	8	4	12.50	12.50	12.50	—	—
Gloucester	26,688	4	3	25.00	—	—	—	—
Waltham	22,058	6	2	—	16.66	—	—	—
Quincy	19,642	1	0	—	—	—	—	—
Pittsfield	18,802	5	0	40.00	—	—	20.00	—
Everett	16,585	9	5	—	—	—	—	—
Northampton	16,331	2	0	—	—	—	—	—
Newburyport	14,073	8	2	75.00	12.50	25.00	12.50	37.50
Amesbury	10,920	—	—	—	—	—	—	—

Deaths reported 1,992: under five years of age 704; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fever) 350, acute lung diseases 257, consumption 248, diphtheria and croup 148, diarrhœal diseases 87, typhoid fever 47, scarlet fever 21, cerebro-spinal meningitis 20, measles 10, whooping-cough 7, malarial fever 4, erysipelas 3, small-pox 3.

From scarlet fever Pittsburg 8, Brooklyn 4, New York and Baltimore 3 each, Lowell 2, Springfield 1. From cerebro-spinal meningitis New York 8, Brooklyn and Washington 3 each, Cleveland, Portland, Worcester, Lowell, Cambridge and Malden 1 each. From measles New York 8, Cleveland and Pittsburg 1 each. From whooping-cough New York 3, Brooklyn 2, Boston and Pittsburg 1 each. From malarial fever Charleston 2, New York and Cleveland 1 each. From small-pox Brooklyn 2, New York 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,327,846, for the week ending October 28th, the death-rate was 18.3. Deaths reported 3,622: acute diseases of the respiratory organs (London) 271, diphtheria 110, diarrhœa 94, fever 71, whooping-cough 64, scarlet fever 58, measles 35, small-pox (Bradford 10, London and Birmingham 2 each, Bristol 1) 15.

The death-rates ranged from 10.5 in Croydon to 27.9 in Liverpool; Birmingham 21.2, Bolton 19.1, Bristol 15.5, Derby 14.5, Hull 15.5, Leeds 19.4, Leicester 16.4, London 18.0, Manchester 17.7, Newcastle-on-Tyne 25.1, Nottingham 13.9, Oldham 19.1, Portsmouth 14.3, Sheffield 19.4, West Ham 16.5, Wolverhampton 22.9.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 4, 1893, TO NOVEMBER 10, 1893.

By direction of the Secretary of War, leave of absence for four months is granted CAPTAIN WILLIAM STEPHENSON, assistant surgeon, U. S. A.

The station of MAJOR BLAIR D. TAYLOR, surgeon, is changed from the old post of Fort Bliss, Texas, to the new post of that name and he will report in person to the commanding officer of the latter named post for duty.

CAPTAIN FRANCIS J. IVES, assistant surgeon, is relieved from temporary duty with the Medical Section of the War Department Exhibit, World's Columbian Exposition, Chicago, Ill., and will return to his proper station, Fort Sheridan, Illinois.

FIRST-LIEUT. JOHN S. KULP, assistant surgeon, now on duty at Columbus Barracks, Ohio, will proceed to Jackson Park, Chicago, Ill., and report in person to the commanding officer, Camp Lamont, for temporary duty with the battalion of troops stationed there.

PROMOTIONS.

CAPTAIN EDWARD T. COMEGYS, assistant surgeon, to be surgeon, with the rank of Major, October 26, 1893.

FIRST-LIEUT. JAMES D. GLENNAN, assistant surgeon, to be assistant surgeon, with the rank of Captain, October 29, 1893.

FIRST-LIEUT. ALFRED E. BRADLEY, assistant surgeon, to be assistant surgeon, with the rank of Captain, October 29, 1893.

APPOINTMENTS.

By direction of the Secretary of War the appointments of WILLIAM W. QUINTON, THOMAS S. BRATTON, DEANE C. HOWARD, ALEXANDER S. PORTER and WILLIAM H. WILSON, to be assistant surgeons, with the rank of First-Lieutenants, to rank from October 26, 1893, are announced. They will report in person without delay, to the president of the Army Medical School in this city, for the course of instruction prescribed in General Orders No. 78, A. G. O. September 28, 1893.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING NOVEMBER 11, 1893.

WM. MARTIN, surgeon, ordered before Retiring Board.

N. J. BLACKBURN, passed assistant surgeon, from Navy Yard, New York, and to Norfolk Hospital.

T. C. CRAIG, passed assistant surgeon, ordered to Navy Yard, New York.

E. P. STONE, passed assistant surgeon, from Naval Hospital, Chelsea, and to Marine Rendezvous, Boston, Mass.

G. B. WILSON, passed assistant surgeon, from Marine Rendezvous, Boston, and to Naval Hospital, Chelsea, Mass.

B. H. KIDDER, medical inspector, promoted to grade of medical director.

JAMES E. GARDNER, passed assistant surgeon, promoted to grade of surgeon.

MILLARD H. CRANFORD, passed assistant surgeon, promoted to grade of surgeon.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Wednesday, November 22d, at 8 o'clock, P. M., by DR. M. H. RICHARDSON. Subject, "The Anatomy and Surgery of the Gall-Bladder." Physicians are cordially invited.

APPOINTMENTS.

DR. THOS. H. MCCARTHY has been appointed Pension Examining Surgeon for the Brockton, Mass., District.

WILLIAM L. RICHARDSON, M.D., has been appointed Dean of the Harvard Medical School, *vice* H. P. Bowditch, M.D., resigned.

W. TOWNSEND PORTER, M.D., of St. Louis, has been appointed Assistant Professor of Physiology in the Harvard Medical School.

F. A. DAVIS, M.D., has been appointed Instructor in Physiology.

RECENT DEATHS.

HENRY COLMAN, M.D., M.M.S.S., died at Lynn, November 12th, aged fifty-three years. During the war he served in the engineering corps of the Department of the Gulf, but afterwards completed his medical education and received his degree of M.D. from Yale. He was a member of the American Association for the Advancement of Science and a visiting surgeon to the Lynn Hospital.

HERMANN AUGUST HAGEN, M.D., Professor of Entomology at Harvard College, died in Cambridge, November 10th, aged seventy-six years. He was born in Konigsberg, Prussia, and received his degree of M.D. from the University of Konigsberg, in 1840. He devoted much time to the study of entomology, but began the practice of medicine and was for three years first assistant at the surgical hospital of his native town. In 1867 he was invited by Prof. Louis Agassiz to become his assistant in entomology at the Museum of Comparative Anatomy in Cambridge and in 1870 he was made professor of entomology in Harvard University.

CHARLES FREDERICK CREHORE, M.D., M.M.S.S., died at Newton Lower Falls, November 8th, aged sixty-five years. He graduated from the Troy Polytechnique School and received his degree of M.D. from the Harvard Medical School in 1854. In August, 1862, he entered the army in the rank of surgeon and was assigned to the Twentieth Massachusetts Regiment. For a time he was assigned to the ship *Cambridge*. The next year he was promoted to the rank of surgeon, and was attached to the Thirty-seventh Massachusetts Regiment, operating with the Sixth Army Corps in the Army of the Potomac. After the close of the war DR. Crehore resumed his medical practice in Newton Upper Falls for a short time, but soon gave up practice to attend to the large business interests left him by his father. He was a member of the Newton Water Board from 1880 to 1888.

BOOKS AND PAMPHLETS RECEIVED.

The "Perfected" Urethroscope. By William K. Otis, M.D. Reprint. 1892.

Tenth Annual Report of the Superintendent of Health of the City of Providence for the year ending December 31, 1892.

Thirty-eighth Annual Report upon the Births, Marriages and Deaths in the City of Providence for the year 1892. By Charles V. Chapin, M.D., City Registrar. 1893.

Transactions of the Fourth Annual Meeting of the Medical Society of the State of Washington, held at Tacoma, May 3, 4, 5, 1893. Spokane: Willcox Printing Co. 1893.

Polio-Myelitis. A Clinical Lecture on (1) Case of Polio-Myelitis; (2) Case of Chorea; (3) Case of Sacro-iliac Arthritis, etc. (probably rheumatic). By J. T. Eskridge, M.D., Denver, Col. Reprint. 1893.

A Practical Treatise on Materia Medica and Therapeutics. By Roberts Bartholow, M.A., M.D., LL.D., Professor of Materia Medica, General Therapeutics and Hygiene in the Jefferson Medical College of Philadelphia, etc. Eighth edition, revised and enlarged. New York: D. Appleton & Co. 1893.

The Principles and Practice of Surgery. By John Ashhurst, Jr., M.D., Barton Professor of Surgery and Clinical Surgery in the University of Pennsylvania; Surgeon to the Pennsylvania Hospital, Philadelphia. New sixth edition, enlarged and thoroughly revised. Philadelphia: Lea Brothers & Co. 1893.

The Cholera Epidemic of 1892 in the Russian Empire, with notes upon Treatment and Methods of Disinfection in Cholera, and a short account of the Conference on Cholera held in St. Petersburg in December, 1892. By Frank Clemon, M.D., Edin., Member of the Epidemiological Society of London. London: Longmans, Green & Co. 1893.

An Elementary Text-Book of Biology, Comprising Vegetable and Animal Morphology and Physiology. By J. R. Ainsworth Davis, B A., Trinity College, Cambridge; Professor of Biology and Geology in the University College of Wales, Aberystwyth. With numerous illustrations and glossary. Second edition, revised and enlarged. Two parts. London: Charles Griffin & Co. Limited. 1893.

A Text-Book of Physiological Chemistry. By Olaf Hammarsten, Professor of Medical and Physiological Chemistry in the University of Upsala. Authorized translation from the second Swedish edition and from the author's enlarged and revised German edition. By John A. Mandel, Assistant to the Chair of Chemistry, etc., in the Bellevue Hospital Medical College and in the College of the City of New York. First edition. New York: John Wiley & Sons. 1893.

Address.

THE GENERAL PRINCIPLES UNDERLYING ALL GOOD METHODS OF INFANT FEEDING.[1]

BY T. M. ROTCH, M.D.,
Professor of Diseases of Children, Harvard University.

JUST as the highest aim of the medical art should be directed to the province of preventive medicine, so the highest and most noble branch of preventive medicine should consist in the study of the best means and the most practical methods for starting young human beings on their life race; for preserving them from the perils which surround the early hours of existence; for giving them strength and vigor to resist the attacks which, greater and more dangerous in inverse proportion to their age, must inevitably be made on their vitality. The preventive medicine of early life is pre-eminently the intelligent management of the nutriment which enables young human beings to breathe and grow and live. In fact, it is a proper or an improper nutriment which makes or mars the perfection of the coming race.

Infant feeding, then, is the subject of all others which should interest and incite to research all who are working in the preventive medicine of early life.

The subject is a great one, and is worthy of the attention of the greatest minds of the age, worthy of the discussion of the leaders in medical thought of our Western Continent.

The responsibility of introducing such a serious question before such an assemblage of advanced medical thought is a grave one. It should be taken up carefully; it must be dealt with broadly.

We must acknowledge for the present, and in fact it is true, that in the status of infant feeding as it has existed up to the last few years, the average human breast-fed infant is more likely to live, the other factors of the life problem being equal, than the infant which is fed by any other method. But we must remember that the latest scientific work on this subject shows very clearly that it is not breast-milk, as a whole, which is pre-eminently good, but that there are definite known reasons inherent in the different elements of the breast-milk which make it the best known food. It is our province as scientific workers in this most important branch of practical medicine, to year by year elucidate and make use of these elements, once covered by a somewhat mysterious veil, but now rapidly becoming laid bare by the search-light of patient and laborious investigation. A great advance has been made in our knowledge as to what we are to copy from human breast-milk and what we must acheive in preparing a substitute.

The very essence of this practical information which we have gradually acquired, lies in the discovery that there is no one perfect nutriment for young human beings as a whole, but that it is the changes in the various elements of the breast-milk which satisfy the demands of the individual, and thus in time suits the many to such a degree that this protean food has erroneously come to be looked upon as one especial unchanging nutriment.

To thoroughly understand and successfully solve the feeding problem of the early months of life, a knowledge of the changes which take place in the mammary gland from many causes must be clearly kept in view. Again, the methods of modifying the milk in the human mammary gland, however limited in their scope they may be, should be practically investigated and carefully adapted to the individual, according to its age and size and general physical condition. The mammary gland in its perfected state, uninfluenced by disease or nervous disturbance or by the improper living of its owner, is a beautifully adapted piece of mechanism constructed for the elaboration and secretion of an animal food. When in equilibrium it represents the highest type of a living machine adapted for a special purpose, both mechanically, chemically, physiologically and economically. When from any cause this sensitive machinery is thrown out of equilibrium its product is at once changed, sometimes but slightly, but again to such an extent that the most disastrous consequences may follow when it is imbibed by the consumer.

To state, then, concisely what I have already referred to, we should, in studying the form of nutriment which shall be suitable for the early months of life, manifestly be guided by what nature has taught us throughout many ages. The researches of science are indeed, especially in the subject of infant feeding, wisely directed to learning to read the truths which nature presents to us. Great progress has been made in reading these truths. What we are at present endeavoring to do is to copy them.

The constituents of the nutriment which nature has provided for the offspring of all mammals are essentially animal and never vegetable. Human beings, in the first twelve months of life, are carnivora. It is, therefore, evident that an animal food entirely and always free from any vegetable constituents has been proved to be the nutriment on which the greatest number of human beings live and the least number die.

Where good breast-milk, or rather, one that is fairly adapted to the individual infant, cannot be obtained, or, if obtained, cannot be regulated by modification, it is desirable to combine the elements which good breast-milks represent. For perfecting this (which may best be called substitute feeding), we must have a material which, while as closely as possible approaching the analysis of good breast-milks, is also easily accessible. There is no mammal whose milk-production corresponds sufficiently to human milk to render a direct substitution safe or wise.

If, therefore, milk is used, the problem demands for its solution a modified milk. The mammal whose product, representing a carniverous food, has been proved from the earliest ages to best satisfy this demand is the cow. Certain breeds of cows are better adapted than others to produce milks which can be used for copying human milks.

For the use of this continent, these breeds are the Durham, Ayrshire, Holstein-Friesien, American grades and common natives.

The infant at the breast receives for its nutriment a fluid which is fresh, sterile, neutral or faintly alkaline, has a temperature of 98° to 100° F., and is furnished in an amount proportionate to its age and size. It is this fluid which we should copy in every possible detail when we undertake to prepare a substitute food. We should also consider as foreign matter, to be rigidly avoided, any element which we know is not to be found in the fluid which we are copying. Thus, and

[1] Address at the opening of the third session of the Section for Diseases of Children of the Pan-American Medical Congress, at Washington, D. C., September, 1893.

thus only, can we finally arrive at the proper solution of this intricate feeding problem.

It would seem hardly necessary to suggest that the proper authority for establishing rules for substitute feeding should emanate from the medical profession, and not from non-medical capitalists. Yet when we study the history of substitute feeding as it is represented all over the world, the part which the family physician plays, in comparison with the numberless patent and proprietary foods administered by the nurses, is a humiliating one, and one which should no longer be tolerated.

I would plead in the name of common humanity, as well as in that of the intelligence and scientific reputation of our profession, that this representative body of American physicians should, in its endeavor to advance the general subject of infant feeding, record itself as opposed to the use of patent or proprietary food of every description. If we are abreast of the times, and if we will but recognize and do justice to the work which has lately emanated from our own profession, we surely will not hesitate to boldly relegate to oblivion the statements of the food proprietors which on box and can, on bottle and on printed circular, attempt to stem the slow but inevitably progressing wave of scientific investigation.

It may be well to bear in mind that the attempts which in the past have been made to manufacture cheap foods have been markedly failures. We must first, regardless of expense, learn to produce by modification a perfected substitute food before we should endanger the success of our undertaking by allowing the mercantile side of the question to cripple us in the use of costly methods, which, however, we know to be the best. We should, in fact, remember that the nutriment which we are endeavoring to copy, far from being a cheap product, is, on the contrary, a very expensive one.

It is the knowledge of how to determine the best combinations of certain elements and the best methods of accomplishing these combinations which has in the last year or two especially claimed our attention, and in which we have met with signal success.

There is no doubt but that one of the most important questions connected with the preparation of a substitute food is the proper control of the primal milk-supply. What that control shall be, and how it shall absolutely be kept in the hands of those who by education and unselfish interest are most fitted to use their power wisely, is a matter worthy of your deepest thought. The State control, as represented in Denmark, is indeed a brilliant example of what can be accomplished in this direction. Whether a similar method would prove to be the best for us to adopt has not as yet by any means been proven. The political clouds which continually obscure the highest scientific aspirations on this continent make it probable that for the present, at least, the primal milk-supply can best be perfected by individual enterprise and enthusiasm.

Finally, I would call your attention and consideration to the great capacity of different infantile digestions for assimilating a variety of proportions of the same nutritive elements, and hence, when introducing new methods for preparing a substitute food, the necessity for providing for many prescription possibilities.

The latest researches on human breast-milk show that the albumen of the milk is not merely an exudation from the lymph vessels supplying the mammary gland, but that it is actually modified in the breast. We thus see that the mammary gland, besides being an elaborator and a storehouse for infant nutriment, is also a modifier.

Following, therefore, nature again closely, we learn that the precise modification of an absolutely pure and fresh primal milk-supply is the vital principle which should at present underlie our efforts to perfect substitute feeding; and I trust that those who will to-day take part in the discussion of this very important subject will especially enlighten us on two matters of extreme interest:

(1) What is the best method of obtaining a stable and perfect primal milk-supply?

(2) When this supply is obtained, how shall it best be modified?

Original Articles.

APPENDICITIS.[1]

BY A. WORCESTER, A.M., M.D.

ONE of the great disappointments of this age is the failure of the medical profession to make practical use of the brilliant discoveries of the pathologists. In some directions the general practitioner is not in the least responsible for this failure. Thus, in the matter of tubercular diseases, we can only stand with the laity anxiously awaiting the discovery of some method of treatment that will not dash our high hopes. But in other directions the general practitioner is responsible for not giving to his patients the benefits that logically belong to the recent discoveries in the natural history of certain diseases.

Nowhere else is this fault of the profession more glaring than it is in the treatment of appendicitis. In this paper I purpose to expose this fault and to urge the adoption of treatment based upon facts and reason.

The appendix cæci vermiformis, as its name signifies, is a blind tag-end of the large intestine. So far as is known, it is as useless as the nipples on a male breast. Very probably its proneness to decay is due in part to its uselessness, in obedience to natural law; but this liability to decay is also largely due to its exposed situation as regards bacterial infection. The alimentary canal teems with potential germs of disease which, although geometrically inside, are yet in reality as outside the body as if held in the closed fist. Indeed, our health and even our life depends upon the integrity of the gut in preventing the admission into the body of these deadly bacteria.

There is, however, a still stronger reason for the frequent inflammations of the appendix to be found in the study of its anatomical structure, which like that of the tonsil is largely lymphatic and absorptive. Its poor mucous lining cannot even lubricate itself against the accumulation in its cavity of foul material. This fæcal matter becoming inspissated naturally causes irritation and ulceration. If sharp-angled seeds or other foreign bodies are also present, and if the opening of the appendix into the cæcum is blockaded with hard fæces, such conditions would, of course, favor the ulcerative destruction of the mucous membrane.

What form of inflammation follows will then depend upon the kind of disease germs thus admitted into the

[1] Read by invitation before the Essex South District Medical Society, September 19, 1893.

structure of the appendix. A frequent result is an absolute interference with the blood-supply of that portion of the organ beyond the original seat of inflammation. Whether this interference be mechanical, from pressure, or whether from closure of the vessels by septic thrombi, the result is equally disastrous. There is then no escape for the outer portion of the appendix. Gangrene and sloughing must ensue. Often, however, the inflammation of the walls of the appendix is not completely annular, but more strictly localized, in which case a perforating ulcer may result without complete gangrene of the distal portion of the organ.

There also occurs more or less frequently a catarrhal inflammation, as it is called, which does not necessarily involve the destruction of any portion of the appendix. It is this variety which so often recurs, and so often precedes the destructive attack. But even this mild form is not so harmless as many would have us believe, for it is apt to cause a neighboring adhesive peritonitis which renders the proper surgical treatment much more difficult when later that becomes imperative. It is also the probable cause of the various deformities of the appendix, which are considered by some to be responsible for the occasional attacks of pain. However that may be, at any rate it is certain that the normal appendix is perfectly flaccid and may comfortably lie in any bent and crooked position. Only when the walls are thickened and stiffened by previous inflammation can any bend of the organ obstruct its lumen and thus cause appendicular colic.

These different varieties or stages of appendicitis may be distinguished by the eye, aided perhaps by the microscope, but not by abdominal palpation nor even by the rectal touch.

Were the appendix within easier reach, its various inflammations could, of course, be more accurately tabulated. It might then, perhaps, be possible for two or more authorities to agree upon the number of distinct varieties; and there might then be some foundation for those who pretend even now to diagnosticate the "mild catarrhal" from the "possibly fulminant" variety. But on the other hand, were the useless little organ within easy reach, whenever inflamed it would probably be snipped off and sent to the nearest pathological laboratory for culture-test examination, whereby alone may be obtained a certain diagnosis as to the character of the inflammation. For there can no longer be any doubt that the different forms of purulent inflammation are due to the presence in affected tissues and in serous cavities of the different species of pyogenic micrococci. Thus if the inflammation be caused by the staphylococcus pyogenes albus, it may be expected to be of a mild character. And even if the inflammation involves the outer wall, thus allowing a migration of the micrococci into the peritoneal cavity, there may still be spontaneous recovery from the peritonitis. But if, on the other hand, it is the streptococcus pyogenes that has invaded the walls, then there is no escape from a gangrenous appendix, which unless immediately removed will surely cause a fatal peritonitis.

Again, although the local ulcer that causes the perforation may itself be due to a comparatively harmless micrococcus, the cæcum and the appendix may nevertheless contain the most virulent species, which after the perforation may thus freely enter the abdominal cavity.

It is, therefore, most unfortunate for those who believe in temporizing that even the normal appendix is not within the field of easy observation. Indeed, owing to its obscure position it has only lately received even obituary consideration. Moreover, after it is inflamed, owing to the speedy yet consequent inflammation of the neighboring peritoneal surfaces, the appendix becomes more and more removed from the examiner's hands. Thus the difficulties of diagnosis increase with the progress of the disease.

Fortunately, in the early stages of its inflammation, it is not very difficult to discover the simple fact that it is inflamed. But that is all.

The disease itself would be of comparatively little consequence were it not for its after-effects. Indeed, it is usually recognized only by its frightful sequelæ, which nowadays with disgraceful inaccuracy are generally described as varieties of appendicitis.

The principal harm resulting from the disease is due to the perforation of the organ and the consequent passageway for the contents of the bowel into the abdominal cavity. This condition would invariably be followed by septic peritonitis, were it not for the facility with which the peritoneum, by adhesive inflammation previous to the perforation, blockades the threatened pathway. The possibility of this blockade depends largely upon the varying anatomical situation of the appendix as regards the walls of the abdomen and the neighboring coils of intestines. Sometimes quite a defence can be thus extemporized and there then results, instead of a general peritonitis, a perityphlitic abscess.

Either result admits of ready diagnosis.

There is no need of pursuing the subject of general septic peritonitis. Its terrors are only too well known. The only rational treatment is its prevention. That failing, the source of infection having been removed, the abdominal cavity must be given the freest possible drainage.

A perityphlitic, or, better named, a periappendicular abscess, is a somewhat less frightful result of a perforated appendix. A fatal issue is not so probable, and at any rate, is not so immediate. The medical attendant has more time to collect his wits and to arrange for the proper treatment, which is, of course, surgical, as it is in every other kind of abscess. There is never any justification for delay in evacuating foul pus. And the audacity of physicians who make a specialty of not using the knife in medically treating such cases, where the stench of the pus if evacuated renders the patient's house almost uninhabitable, is equalled only by that of the mind-cure practitioners who are said to continue giving "absent treatment" to their patients, if not informed of their death.

It is not, however, my present purpose to discuss at any length the treatment of the sequelæ of appendicitis. I mention the sad subject only to emphasize the importance of preventing disasters, which are liable to follow any attack. Such prevention is entirely feasible. It depends upon cutting short the appendicitis. And this can easily be done by cutting off the appendix.

Before considering the question of the treatment, it is proper first to consider the diagnosis of the disease. This necessitates the closest clinical study.

Appendicitis is by no means an insidious disease. To begin with, there is generally the help of a history of previous similar, but milder attacks. The disease always causes pain. At first, this pain is only a gen-

eral belly-ache, but more severe than, for instance, the pain caused by sharp cathartics. Nor is it apt to be so distinctly wave-like in character as that caused by over-active peristalsis. It has from the first a most discouraging come-to-stay feeling. This early pain is relieved somewhat by general pressure over the whole abdomen, just as the pain caused by an ulcerated tooth is relieved by pressure over the whole cheek; but, as is also the case with the toothache, it is increased by strictly localized pressure. A further most important characteristic of the pain is that it is made worse by removal of the pressure. The pain is also increased by motions involving the right psoas muscle, and by bending the trunk to the left.

Later, in the progress of the disease, the pain is increased and more localized in the right abdomen. From the frequent proximity of the appendix to the ureter, the pain caused by its inflammation is apt to shoot upwards and backwards into the loin, and still more often downwards and forwards into the penis and right testicle, or into the right labium. This often causes intense desire and yet ineffectual attempts to empty the bladder. An attack of renal colic is thus simulated.

Even if a laxative has not been taken by the patient before sending for the doctor, there is generally the story of some strainings for bowel evacuation in the hope of thus relieving the pain. But so far as the diagnosis is concerned no attention whatever need be paid to the condition of the bowels. Patients usually give a history of previous costiveness, whatever the nature of their complaint.

The pain of appendicitis, besides causing more or less futile attempts to empty the bowel and the bladder, is almost sure to cause nausea and vomiting. A severe attack of acute indigestion is thus simulated, and patients generally ascribe their trouble to some imprudence in diet. Prudence is an uncommon virtue. Often the pain is ascribed to some muscular strain or abdominal bruise, which, except for the coincident or sequent pain, would have passed unnoticed.

Finally, the pain usually becomes intolerable, which accounts for the customary deadly administration of opiates. Were it not for this terrible morphine-masking of the disease, more cases would be treated by timely surgery, and fewer physicians would be thus lulled into the lethal stupidity of inaction.

So much for the history and subjective symptoms, which indeed, even if taken alone, would strongly suggest appendicitis. The positive diagnosis can be made only upon the additional evidence that may be gained by physical examination.

The rate of the pulse and the height of the temperature at any one time are of absolutely no consequence; the variation between successive observations is, however, of exceeding importance. In the early stages of the disease, the pulse quickens and the temperature rises as the inflammation advances. The increase may be very slight, but it serves to eliminate all non-inflammatory affections. It is, however, to be remembered that the pulse and temperature are of absolutely no value as evidence after peritonitis subvenes.

By far the most important help in making the diagnosis, comes from palpation of the organ itself. If in normal condition, even through the thinnest and most conveniently lax abdominal walls, it is doubtful if the appendix can be felt. But if it is inflamed, it is larger and more rigid; it generally contains concretions; it is then exquisitely tender to pressure, and, as has already been mentioned, it aches more during the removal than during the application of pressure; and under these conditions it can generally be located by careful palpation, and the fact of its inflammation thus established.

There is usually noticeable some slight dulness on percussion immediately over the point of greatest tenderness; but, on account of the inflated intestine often adjoining, the absence of this sign counts for nothing.

Were the appendix to be found always in the same position, its certain palpation would be far more possible, and McBurney's famous point would be more deserving of its fame. But only the base of the appendix, at its origin from the cæcum, has any approach to a fixed location, which, by the way, is considerably lower than McBurney's line; and as the appendix may be from one inch to five inches long, and may lie in any direction from its base, and further, as only its tip may be inflamed and tender, it follows that the distinguishing resistance and tenderness pathognomonic of the disease may be many inches removed from the McBurney point. As a matter of fact this not seldom happens. If the appendix lies alongside the ascending colon, its tender tip may be found near the gall-bladder. If, on the other hand, it points downwards, its point of greatest inflammation, and consequently of greatest tenderness, may be attached to the ovary or to the rectum.

The only value in the McBurney point is in the attention that has been given by those who sought for it to the importance of a particular localization of tenderness and of resistance to pressure.

If it be remembered in how many different positions the appendix may lie, and that the point of tenderness may be in any part of its variable length, then it will be seen that thorough palpation of the whole right abdomen is necessary in order to exclude the presence of an inflamed appendix. Indeed, in one case which I saw in consultation this point of especial tenderness was low down and to the left of the median line. On abdominal section, the tip of the appendix was found attached to the rectum and directly under the point of especial tenderness.

But happily the usual position of the appendix is in the right iliac fossa where palpation is easiest. The smooth hollow of the false pelvis gives an even counter-pressure to the examining fingers, which should be laid almost flat on the belly wall and slowly pressed down until the even resistance of the ilium can be felt. Then by very slow and steady motion the fossa is to be explored by carrying the abdominal wall along backwards and forwards with the examining fingers. If no particular resistance or tenderness is encountered, then, after gradual release of the pressure, the fingers may be changed to another place on the surface, and so on over the whole right abdomen. If by such an examination no point of especial tenderness and of resistance is discovered, then there is no appendicitis. The converse, however, is by no means true. For when a definite resistance and an especial tenderness is localized even in the right iliac fossa, several other conditions must be considered and eliminated before making that diagnosis. Impacted fæces, movable kidney, malignant tumors, and in females enlargements of the uterine appendages also, must thus be considered. The two first named conditions, of impacted fæces and of movable kidney, ought not to escape definite diagnosis;

but only by abdominal section can a positive differential diagnosis be made as regards malignant tumors or enlargements of the uterine appendages. And, in fact, the combination of these last named diseases with appendicitis not seldom occurs.

Where there is good reason to suppose the existence of an inflamed appendix, and yet where, from unusual thickness or rigidity of the abdominal walls, its presence cannot be determined, some aid may be got from examining the belly under full anæsthesia. Still more help can be got by incising the muscular wall down to, but not through, the peritoneum. This procedure is commended to those who, not daring to open the abdominal cavity during the lifetime of their patients, retain for their own comfort the benefit of the doubt, instead of giving it, as they should do, to their patients.

In addition to these means of palpation we can employ the rectal touch, and in females the vaginal touch. Except in the rather rare instances where the appendix points directly downwards, little or no help is thus to be gained. In the diagnosis of perityphlitic abscess there is, of course, much more chance of gaining information by these routes. And indeed, after the abdominal walls are made rigid by a general peritonitis, that is often the only way of gaining information as to its cause. But let it be kept in mind that we are now considering the diagnosis of appendicitis, and not that of its sequelæ.

In order to emphasize the symptoms and signs by which this diagnosis can be made I offer the following summary.

Appendicitis begins with general pain in the abdomen, which afterwards becomes localized in the right side. This pain is constant; but is increased at times spontaneously, and always increased by palpation of the appendix and by motions of the body which disturb its relation with adjacent surfaces. It often shoots along the course of the ureter. It is generally intense. It is generally accompanied by tenesmus of the bladder and rectum and by nausea and vomiting.

There is always fever. This may be slight, but it steadily rises as the inflammation progresses until the complication of peritonitis subvenes. The inflamed appendix being larger and harder, and often full of concretions, at the beginning of the attack can be palpated. It is exquisitely tender to pressure. There is usually slight dulness on percussion directly over it.

Besides the diseases already mentioned, as simulated by appendicitis, in making the diagnosis there must also be excluded typhoid fever, perinephritic abscess, and all affections of the gall bladder and bile ducts.

It is within neither the scope of this paper nor the writer's power to set forth in full detail the processes of such eliminative diagnosis. But it cannot too forcibly be insisted that the diagnosis of appendicitis is not more difficult than that of any other local internal inflammation. This, indeed, would seem a superfluous assertion, while so many believe themselves able to diagnosticate even the particular varieties of the disease. Except by abdominal section there is no possible way of ascertaining the extent of the disease at any given time. Nor can the rate at which the inflammation travels ever be estimated with any sort of accuracy. Perforation may result in a few hours after the onset of the attack, or it may suddenly occur after many days of apparently mild inflammation. It is, therefore, puerile and ridiculous to lay down rules as to the proper day and hour for operating.

In perhaps half of the cases, perforation may not occur; but in half of these apparently recovered cases there will probably be a recurrence; and in half of these recurrences perforation is finally likely to happen. Of the cases where perforation does occur probably fifty per cent. die because of it. Such, however, would not be the sad fact if even then proper surgical treatment were generally employed.

The sum of it is that, under the present methods of treating appendicitis, in more than half of the cases consequent disasters are allowed to occur which are attended by a higher death-rate than that of pneumonia or even of diphtheria.

Were the appendix of any use, or were there danger in removing it at the very onset of its inflammation, there would be some excuse for this terrible mortality. Such, however, is not the case.

(To be continued.)

IS ACUTE POLIOMYELITIS UNUSUALLY PREVALENT THIS SEASON?

BY JAMES J. PUTNAM, M.D.,
AND EDWARD WYLLYS TAYLOR, M.D.

It was conclusively shown by Dr. Wharton Sinkler of Philadelphia, as long ago as 1875,[1] that poliomyelitis ("atrophic spinal paralysis," "infantile paralysis,") is pre-eminently a disease of the summer months of the year; and the statistics of foreign observers have proved that similar conditions prevail abroad.

An analysis of the cases observed at the Massachusetts General Hospital confirms Dr. Sinkler's conclusion, with the exception that, so far as the small aggregate numbers prove anything, they show that among us there is a greater prevalence of the dreaded affection in September than in August. The figures for 1888 to 1893, inclusive, are as follows:[2]

DATES OF ONSET BY MONTHS.

January	3 cases
February	0 cases
March	0 cases
April	4 cases
May	0 cases
June	4 cases
July	3 cases
August	6 cases
September	11 cases
October	6 cases
November	2 cases
December	0 cases

It would not have seemed worth while to report these few observations had it not been that the number of cases observed at the Massachusetts General Hospital in September and October of this year is decidedly larger than usual, and that the experience of the physicians at the Children's Hospital, and the Boston Dispensary, and the consultation practice of one of the writers, furnishes additional evidence that the disease is more than commonly prevalent this autumn, in spite of the persistence of what from the ordinary point of view would be called remarkably fine weather. If we put together these four sets of cases, and compare this year with 1892, as regards the Children's Hospital and the Dispensary, and with an average of the previous five years[3] as regards the

[1] American Journal of Medical Sciences for April, 1875.

[2] There is an error arising from the lack of statistics for November and December, 1893; but for present purposes this is unimportant. The figures would have been larger but for the fact that a number of cases were omitted on account of doubt as to the dates of onset.

[3] In 1892 there were no cases during August, September and Octo-

Massachusetts General Hospital, and add in three cases observed privately during October and November, 1893, we get the following figures:

August to November, inclusive, 1892	6 cases
August to November, inclusive, 1893	26 cases*

* In addition to the out-patient cases at the Children's Hospital, there are three acute cases in the wards which we did not count.

Of these twenty-six cases, eight had their onset in August, eleven in September, six in October, and one in November. Even if we leave out the three private cases, and admit that 1882 was an "off year" for poliomyelitis, as seems to have been the case, still it can hardly be doubted that the influences are unusually favorable for the development of the disease this year.

In 1891, similar conditions, perhaps, prevailed, since between August and November seven cases presented themselves at the Massachusetts General Hospital, the same number as this year. In 1888 there were six cases; but in 1889 only three; and in 1892, as stated, none at all. The attendance at the department during this period has been steadily increasing.

It is foreign to the purpose of this paper to attempt an analysis of the subtle meteorological influences which make the summer and early autumn months relatively so dangerous. Our main object is to lead other physicians to contribute their experiences to reinforce or counterbalance ours. It may, however, be of interest to indicate the lines of research which the facts so far gathered have marked out.

To what is the unfavorable influence of the summer due? It may be an affair of weather, as such, though obviously heat, pure and simple, is not the important factor; or the weather may act as favoring some other influence, perhaps bacterial in character. The reasonableness of this latter view is now conceded by many good observers; but it is certain that its advocates are still far from having made good their claim.

In favor of the doctrine is the fact that the outbreaks of the disease occasionally occur in distinct epidemics.[4] These so-called epidemics, however, have always happened in late summer and early autumn, and perhaps represent only exaggerated examples of the regular annual increase. It is also noteworthy that in some of these epidemics atypical and relatively virulent cases have been unusually common. Again, the occasional occurrence of acute poliomyelitis in conjunction with acute polyneuritis,[5] which is probably always of toxic, and often of infectious origin, bears out this view.

A striking case of this sort was published by one of us some years ago.[6] The evidence of the neuritis was, to be sure, only clinical in character, but the symptoms left little doubt on that score. The post-mortem examination of the patient, who died two months after being taken sick, showed the anterior gray matter to be threaded, on each side, throughout the length of the cord, with a line of inflammatory softening.

A patient, also an adult, whose case may be of similar character, is now at the Massachusetts General Hospital, under the care of Dr. F. C. Shattuck, who kindly gave one of the writers the opportunity of examining her. The atrophy affects all, or almost all, the forearm and hand muscles of both arms, but not the muscles of the legs. The onset was in August, and the symptoms seemed at first to point to a neuritis; but, later, the atrophy became so predominant, yet without being associated with any considerable nerve or muscle tenderness or impairment of cutaneous sensibility, that the diagnosis of poliomyelitis seemed probable. The case has not, however, been included in our summary.

One of the private cases above alluded to was also distinctly of neuro-myelitic character, and practically of the adult form, affecting, as it did, a young girl of twelve, who was living under the very best of hygienic conditions. This case is especially interesting from the fact that the onset was during the pleasant and cool weather of the current month.

Except for these two cases, and one case in a young child, where the initial pain was greater than usual, there has been nothing to mark the group of cases seen this year as belonging to any unusual type.

It is noteworthy, as against any strongly marked epidemic influence, that the patients did not come to any extent, from any one locality, but from different parts of the large area of the suburbs of Boston. The Charlestown and Chelsea district, however, furnished several cases. Very few of the patients came from Boston proper; and, as further evidence of the immunity of the city, it may be said that the records of the City Hospital yield but one case for this summer and autumn (onset in October), and none for last year.

In conclusion, the writers ask other physicians who have seen these interesting cases, or may see them in future, to send them brief records.

ber at the Massachusetts General Hospital, and only one case at the Children's Hospital.

[4] Cordier: Lyon méd., 1888, lxvii, 1, 2.
Oxholm: Citation in Neurol. Centralblatt, 1890, xii.
Medin: Citation in Schmidt's Jahrbücher, 1891, No. 6.
Hegler: Deut. Med. Woch., 1893, No. 40.
Sinkler: In Keating's Cyclopædia of the Diseases of Children, vol. iv, 6.
Marie: Mal. de la Moelle, 1892.
Strümpell: Lehrbuch.

[5] Pal: Die Multiple Neuritis.
Strümpell: Loc. cit.
Gowers: Diseases of the Nervous System, etc.

[6] Examination of the Spinal Cord in a Case of Poliomyelitis of the Adult, etc., by James J. Putnam, Journal of Nervous and Mental Diseases, January, 1883.

Clinical Department.

A CASE OF ANGIOMA OF THE NASAL SEPTUM.[1]

BY FREDERIC C. COBB, M.D.,
Physician to Throat Department, Boston Dispensary; Assistant Physician Throat Department, Massachusetts General Hospital.

THE patient, Lizzie B., fifteen years of age, came to the Out-patient Throat Department of the Massachusetts General Hospital in October, 1892, complaining of obstruction of the right nostril and epistaxis from the same side. The duration of these symptoms was about six months. There had been no sneezing, and only occasionally a thick yellow discharge from that nostril. She was anæmic, always subject to headaches, and exhausted by the least exertion.

Her previous history, with the exception of an attack of scarlet fever, six years ago, was negative.

Examination of the anterior nares showed them to be normal on the left side. On the right side the nostril was wider, the turbinates slightly atrophic. Hanging from the septum by a thin pedicle inserted near the junction of the skin and mucous membrane

[1] Read before the Laryngological Section of the Pan-American Medical Congress, September 6, 1893.

above the end of the lower turbinated bone, was a small growth divided into two lobes by a constriction about its middle. It was soft to the probe, moved backwards and forwards on inspiration and expiration but was not seen to pulsate. At its lowest portion were a few small, black blood clots. The posterior nares, pharynx and larynx were normal.

With the aid of Hooper's snare and écraseur, the growth was removed, with very slight hæmorrhage. The base was not cauterized. The patient was given an alkaline wash, and returned two or three times until the site of the pedicle was completely healed, which occurred in about ten days.

She was examined in August, 1893, and has had no recurrence. The growth was submitted to Dr. Whitney, the pathologist to the hospital and the following report was received from him: "Growth with large vascular sinuses, with more or less round cells about — cavernous angioma."

In looking over the literature of nasal angiomata, one is struck by the lack of pathological accuracy shown by the reporters of cases. If we inquire what is the structure of angioma, we find, according to Bosworth, that it is composed almost entirely of blood-vessels held together by a slight network of connective tissue. Sutton, Ziegler, Birch-Hirchfeld and other pathologists agree with this definition. Now, if the reported cases of angiomata be judged by their pathological examinations, we shall find, I think, that a pure angioma of the nose is very rare.

The importance of pathological accuracy will be evident when we remember that the prognosis may depend upon it. Sarcomata and epitheliomata may contain small portions of nearly pure angiomatous tissue; and if such portions alone are removed for examination, they may lead to very erroneous conclusions.

The cases reported are those of Verneuil,[2] Wagner,[3] Steinbrügge,[4] Seiler,[5] Richet,[6] Roe,[7] Jarvis,[8] Vanderpoel,[8] Burckhardt,[9] Nèlaton,[10] Huguier,[11] Panas,[12] Guyon,[13] Dumenil,[14] Delavan,[15] Luc[16] and Bellows.[17]

There was no microscopical examination in seven cases, namely, those reported by Dumenil, Verneuil, Seiler, Panas, Guyon, Vanderpoel and Burckhardt. In five cases the growths contained mynomatous tissue, and are not, therefore, pure angiomata. Two of these cases are reported by Wagner, two by Luc, and one by Delavan. Three cases, those of Richet, Huguier, and one of Nèlaton's (reported by Boef), were probably fibromata rather than angiomata.

There remain only the cases of Richet (reported by Bazy), Roe, Jarvis, Bellows, Steinbrügge, and a second case reported by Nèlaton. The pathological descriptions of Richet's and Nèlaton's cases do not justify their classification as angiomata. Roe's case was undoubtedly a pure angioma, although it subsequently degenerated into an angio-sarcoma. No description of the growth removed by Jarvis is given, but only the diagnosis. The case reported by Bellows was clearly a pure angioma, and the pathological description is full and clear. Steinbrügge's case was as clearly an hypertrophy.

As a further proof of the rarity of this affection, I would say that, in an examination of 7,400 cases of nose and throat affections in the Massachusetts General Hospital records, I have found no other case.

With regard to symptoms, the only two of importance are hæmorrhage from, and occlusion of, one nostril. In all the cases reported, the most gentle examination with probe or finger caused extensive bleeding which was arrested with difficulty.

As regards prognosis, we must be cautious; since, although the danger of recurrence is not great, the tendency of such growths to malignant degeneration must be considered.

The diagnosis of pure angioma can only be made by careful microscopical examination but unusual hæmorrhage during palpation of any intra-nasal growth should lead one to suspect angioma.

In the treatment of these tumors we are met with less difficulty, since all recent authors seem to consider the snare, if slowly and carefully used, as the safest instrument. The length of time to be consumed in removal should depend upon the thickness of the pedicle. In Roe's case three hours were required for the bloodless removal of growth. Jarvis and Luc got no hæmorrhage with slow snaring, but considerable from more rapid use of the instrument. The former used his own snare and écraseur, the latter the galvano-cautery loop. In my own case I attribute the lack of hæmorrhage to the thinness of the pedicle.

[2] Annal. des mal. de L'oreille, vol. i, p. 169.
[3] Diseases of the Nose, New York, 1884, pp. 149, 150.
[4] Zeitschrift für Ohrenhulkünde, vol. viii, p. 110.
[5] American Specialist, Philadelphia, 1881, vol. ii, p. 7.
[6] Debrie: Thèse de Paris, No. 5, 1882.
[7] Transactions of American Laryngological Association, 1885.
[8] International Journal of Antiseptics, vol. i.
[9] Berist über die Chirurgische Abtheilurg des Ludwigs-Spitals Charlottenhilfe 1884-85, ii.
[10] Boef: Thèse de Paris, No. 69, 1857, pp. 21-25.
[11] Bull. de la Soc. de Chir. de Paris, 2d S., i, p. 7, séance of January 4, 1860.
[12] Bull. de Soc. anat. de Paris, 1872, xlviii, p. 435.
[13] Bull. de la Soc. de Chir. de Paris, 3d S., vol. ii, p. 356, séance of June 25, 1873.
[14] Ibid. p. 339, séance of June 18, 1873.
[15] Archives of Laryngology, vol. iii, p. 174.
[16] Luc: France Medicale, November 14, 1890.
[17] Bellows: Journal of Ophthalmology, Otology and Laryngology, New York, October, 1892.

Medical Progress.

RECENT PROGRESS IN OTOLOGY.

BY CLARENCE J. BLAKE, M.D.

The most striking advances in otology during the past year have been in the direction of aural surgery, and have been of two classes: those having for their purpose the radical treatment of suppurative disease of the middle ear and its complications and consequences, and those seeking to find a means for the better and more immediately satisfactory relief from impairment of hearing, annoying subjective noises, and so-called auditory vertigo.

The first class of cases, and the means to be employed for their treatment, appeal especially to the interest of the larger number of practitioners, because they include a surgical necessity which may at any time, under unfavorable conditions, become a surgical emergency, and because, in a large proportion of cases of long-continued suppurative inflammation of the middle ear, the ordinary treatment by means of syringing, dry cleansing and the application of astringents and antiseptic powders is inadequate to relief. Gradually the advance has been made from the treatment above mentioned to the use of intra-tympanic syringes and insufflators, to the use of curettes in the middle ear in a limited fashion, to the removal of the ossicles themselves when carious, and to the more thorough removal of carious portions of the tympanic walls, and

finally to the resort to the still more radical operation of reflecting the auricle forward and by chiselling away the posterior superior portion of the bony canal gaining access to the tympanic attic and the antrum.

This operation, first proposed at the Berlin Congress in 1890, by Stacke, and bearing his name, is both historically and clinically reviewed by Weismann[1] in a recently-published thesis. Following Toynbee the first carefully considered clinical report of suppuration of the attic of the tympanum, as it is now called, was published in the recent report of two cases by J. Orne Green,[2] who was followed by other observers. Bezold, in his paper on the treatment of cases of this class by means of boracic acid powder insufflation,[3] enumerates the three categories which most resist treatment as, (1) suppuration of the tympanum with osseous necrosis; (2) suppuration of the tympanum accompanying pulmonary phthisis, and (3) suppuration of the upper portion (the attic) of the tympanum. For the latter he recommends frequent lavage by means of the intra-tympanic canula or syringe, the only procedure commonly in use until Schwarze and Kessel defined the indications for, and described the method of removing the malleus and incus when themselves carious or when they obstructed drainage from the attic in cases of suppuration in that portion of the tympanum or impeded access to its diseased walls. The operation of Stacke consists in reflection of the auricle forward to such an extent as to permit access to the superior posterior portion of the osseous canal, this being removed by chiselling and the diseased cavity of the attic and antrum cleared and curetted, during which process the stapes is protected by an S-shaped hook introduced into the cavity from the front; a quadrangular flap is then formed, the soft tissues of canal tamponed into the opening made, and the auricle replaced.

Weismann offers the following conclusions to his thesis:

That suppurations of the attic are especially worthy of consideration (1) because of their insidious progress, (2) because of the important organs in their neighborhood, (3) because of the difficulty of reaching their point of origin; which reasons explain not only their gravity but their obstinacy.

The double advantage of the operation of Stacke is that it affords means of reaching the suppuration of the attic, and at the same time affords an opportunity of determining the existence of any disease of the antrum; in other words, it may be regarded both as an exploratory and curative operation.

Panse,[4] in reviewing the same subject, reports 57 cases of Stacke's operation, which he has modified in a measure by not withdrawing the membraneous portion of the external auditory canal, but, by carrying it forward, and by limiting the outer incision to the superior and posterior post-auricular region instead of carrying it further forward; the objection to these two procedures being, according to Panse, on the one hand liability to a necrosis of the outer limit of the osseous canal, and, on the other, a necrosis of the musculus attollens auriculæ. Of the 57 operations reported by Panse, cholesteatomatous masses were found in 13, and caries in 26; 34 of the cases were healed; four died; eight cases were not cured, and of these one underwent secondary operation, and one other was discharged with facial paralysis.

MacCuen Smith[5] reports 154 cases of middle-ear operations, chiefly of removal of the membrana tympani and ossicles. Of these operations 69 were in cases of non-suppurative disease of the middle ear, and were undertaken on account of marked impairment of hearing, distressing tinnitus, or vertigo. The results in these cases, as well as in those of suppurative disease, for relief of continued discharge, are stated to be excellent, although but six cases are reported in full.

Burnett,[6] who has previously reported cases of removal of the membrana tympani, malleus and incus in cases of non-suppurative disease of the middle ear, recently gives his results of operative interference in cases of auditory vertigo. "Tympanic vertigo," says the writer, "due to lesions of the middle ear, is a frequent occurrence. It is often not recognized, especially by the general practitioner, as aural vertigo. It is not unusual for tympanic vertigo to be attributed to intestinal disturbance, or to 'neurasthenia' instead of to an aural lesion. True tympanic vertigo, due to a lesion in the middle ear, chiefly from chronic catarrh of the tympanic cavity, is paroxysmal in character, and attended with tinnitus and deafness in the affected ear. It is caused by the inward pressure exerted in the labyrinthine fluid by the retracted and anchylosed ossicles. The foot-plate is thus unduly pressed into the oval window, and there held by the force made, paroxysmally, and for a longer or shorter period."

The author's theory that morbid pressure by means of the impacted stapes upon the fluid in the labyrinth is a local cause of vertiginous symptoms, was tested in an operation upon a case of chronic catarrh of the middle ear, with constant tinnitus and frequently recurring attacks of severe vertigo which had been superadded to deafness in the left ear within the previous two years. The malleus was found to be adherent to the promontory, and both this bone and the membrana tympani were removed in order to liberate the impacted stapes, with favorable results. The success of this and four subsequent operations of a like character, led Burnett to conclude that removal of the incus alone, or of the incus and stapes, the membrana tympani and malleus remaining in position, would liberate the stapes and the compressed labyrinthine fluid, as well as, or perhaps better than, total excision of the membrana and malleus, with less liability to inflammatory action.

As the result of ten operations, including among them resection of the long process of the incus, the following conclusions are drawn:

(1) That removal of the retractive force of the sound conductors upon the stapes is the efficient means of relieving the tinnitus, deafness and vertigo due to the lesions of chronic catarrh of the middle ear.

(2) That the removal of the retractive force upon the stapes can be accomplished efficiently and simply by removal of the incus alone, and even by resection of its long process.

(3) That the improvement in these cases is due to

[1] Eugene Weismann: Traitment des Suppurations de L'Attique, Paris, 1893.

[2] J. Orne Green: Perforation of the Membrane of Shrapnell, Boston Medical and Surgical Journal, March 26, 1874.

[3] F. Bezold: Zur Antiseptischen Behandlung der Mittelohreiterungen, Archiv. für Ohrenheilkunde, 15, 1, May, 1893.

[4] R. Panse: Stacke's Operation s methode zur Freilegung der Mittelohrraume, Archiv. fur Ohrenheilkunde, May, 1893.

[5] The Class of Cases in which we may expect Good Results from Excision of the Membrana Tympani and Ossicles, Therapeutic Gazette, July 15, 1893.

[6] The Surgical Treatment of Chronic Tympanic Vertigo often miscalled Meniere's Disease, Medical News, September 30, 1893.

the liberation of the stapes from the retractive power of the tensor tympani muscle and the consequent unimpeded action of the stapedius muscle, which, relieved from the antagonism of the tensor tympani, tends all the more to draw the stapes from the oval window, thus aiding in its isolation and improved mobility as well as removing the undue pressure inward upon the labyrinthine fluid.

(4) It would seem wiser, therefore, in most cases of chronic catarrhal deafness, tinnitus and vertigo, not to sever the stapedius tendon and remove the stapes, but to be content with the removal of the incus only.

(5) The progressive improvement in hearing noted in many instances must be due to the passive motion exerted upon the anchylosed stapes by sound waves, which are enabled to reach this bone more freely after the removal of the incus.

In reference to the operative removal of the membrana tympani together with the malleus and incus, Jacobson[7] describes the operation as follows: The membrana tympani, either the whole or a part, in case of perforation from suppurative disease, is incised close to its periphery, especial effort being made on the posterior portion to include the annulus tendinosus. The incision is best begun in the inferior segment, in order that the field may be kept clear from hæmorrhage, which is stilled with an application of absorbent cotton, either upon a probe or in the form of a tampon. When this has been effected, the tendon of the musculus tensor tympani is divided by means of an angular knife passed behind the long process of the malleus posteriorily and carried upward with the cutting edge in contact with the tendon; after division of the tendon, the knife is turned in the same plane backward until it comes in contact with the descending process of the incus, down which it is carried until the incudo-stapedial articulation is reached, when this is also divided, a precaution specially necessary, according to the author, in cases of anchylosis of this joint. The malleus, together with the membrana tympani, may now be extracted either by a small instrument resembling a lithotrite, or by means of a wire snare, care being taken in using the latter instrument to carry the wire loop well above the short process. When the membrana tympani is very much depressed, it has been found of advantage to thoroughly inflate the middle ear before the operation. If the operation is undertaken for the purpose of improving the hearing, the removal of the incus is, according to Jacobson, only necessary when that bone has become pathologically immobilized, but in the case of an operation undertaken for the relief of suppurative disease of the middle ear and necessitating the removal of the whole or a part of the membrana tympani together with the malleus, he advises that the incus also should be removed.

Gomperz,[8] in concluding his valuable paper on the development and condition of the question of excision of the membrana tympani and ossicula, gives a *résumé* of his personal experience in 46 cases, of whom 28 were men and 18 women. Two of the cases were between five and ten years of age, 9 between ten and twenty, 19 between twenty and thirty, 10 between thirty and forty, 5 between forty and fifty, 1 between fifty and sixty. These were all cases of suppurative disease of the middle ear treated upon a conservative basis for the purpose of determining the results obtainable without special operative interference. In 49 cases of suppurative discharge from the tympanic attic the pus made its exit in 17 cases through the membrane of Shrapnell. In 36 of the 49 cases, that is to say in about 73 per cent., the treatment by means of middle-ear syringing, insufflations and the like, resulted successfully. Ten of the cases remained under treatment but a short time (not more than a week), and then disappeared from observation, but in four of these the discharge materially decreased in that time. Three of the cases remained unimproved for so long a time that the extraction of the malleus and incus was decided upon. Setting aside 23 cases, which were considered inadequate to the question of the results of conservative treatment because of their uncertain value statistically, it was found of the remaining 26 that 23 remained healed for over a year, one was improved, and two unimproved. Of the 23 cases cured, six subsequently relapsed, — one, eight months later; two, one and one-half years; one, twenty-one months; one, four years; one, five and one-half years. Without exception, these relapses occurred in consequence of the collection of cholesteatomatous masses, after the removal of which by syringing, the ear again speedily healed. In only one of these cases was it found necessary to remove the malleus and incus, which was done with favorable results. Considering, therefore, that out of 26 cases 17 were definitely cured, the percentages would stand as follows: cured, 65 per cent.; cured, with subsequent relapse, 23 per cent.; improved 3.8 per cent.; unimproved, 7.6 per cent.

In view of his experience under the fact that after the removal of malleus and incus, the tympanic attic is likely to become the seat of epidermal accumulation, and that these are frequent causes of relapse, the author is of the opinion that the conservative method of treatment of the suppurative disease of the middle ear is not only not secondary in its value to the operative treatment, but is in advance of it.

[7] L. Jacobson: Lehrbuch der Ohrenheilkunde, Leipsic, 1893.

[8] Gomperz: Ueber die Entwicklung und. den gegenwartigen Stand der Frage von der Excision des Trommelfelles und der Gehorknoechelchen, Archiv. für Ohrenheilkunde, September, 1893.

Reports of Societies.

HARVARD MEDICAL ALUMNI ASSOCIATION.[1]

THIRD ANNUAL MEETING.

THE Association met at the Harvard Medical School at noon on June 27th, DR. J. R. CHADWICK in the chair.

The Secretary, DR. R. W. LOVETT, presented his report, showing that there were two meetings of the Council and of the Executive Committee respectively during the year, at which the committee to report on the Medical School was appointed, and arrangements for an extra *Bulletin* and for lectures by Dr. Wood, of Philadelphia, were made. The Secretary presented his resignation.

On motion, it was voted to change the title of the Association to the "Harvard Medical Alumni Association," in order that the fact that its members are graduates of the School may be emphasized.

As according to last year's rule the officers, except members of the Council, serve three years, the elec-

[1] The delay in publication of this report is due to not receiving the copy until the middle of November.

tion was for three Councillors and a Secretary, and resulted as follows:

Councillors whose term ends in 1897: Dr. Algernon Coolidge, Jr., of Boston, Dr. A. T. Cabot, of Boston, and Dr. J. F. A. Adams, of Pittsfield.

Secretary: Dr. Augustus Thorndike, Boston.

The Treasurer, DR. WALTER ELA, of Cambridge, stated that the Association, organized on April 30, 1891, now numbers over 1,100 members, of whom 13 were honorary. The members represent thirty-six States and Territories, the Dominion of Canada, and six foreign countries. More than half of the graduates of the Medical School have already enrolled themselves in the Association, which has lost 33 by death since its organization, and has added 108 new members since last year. There are 29 life members, an increase of 17. The life-membership fund, amounting to $600, is deposited in the Cambridge Savings Bank, and draws four per cent. interest, which will be considered current revenue. The Treasurer requests prompt remittance of the annual dues for 1893.

The Treasurer's Report was read and accepted.

DRS. LINCOLN R. STONE and S. W. LANGMAID presented the following report:

REPORT OF THE COMMITTEE ON THE HARVARD MEDICAL SCHOOL.

The year that has just closed has not been marked by any striking feature. The hope, the promise, of the sure success of the new four years' course held out in the report of the committee of last year has been fully realized, is an assured fact.

The entering class of 1892 had 153 new matriculants, — the largest class since 1872 with the exception of 1891, which was very large, caused, it was thought, by the fact that many came in that year to avail themselves of the last year of the three years' course. This class numbered 158 new matriculants; only five more than 1892.

The number of those with the degree of A.B., or some similar academic degree, has fallen in this year's class to 28.2 per cent. as against 53.9 per cent. in 1884. This percentage has fallen steadily from that year. In the College of Physicians and Surgeons of New York, on the other hand, the percentage of those with academic degrees has increased slightly, though perhaps this increase may be due to the decrease in the number of new matriculants. (These figures are taken from the Report of the Dean of the Medical School to the President of the University.)

The increase in the number of students is certainly a great cause of encouragement both to the Faculty and the friends and Alumni of the School. It will give them courage for the next step which they will have soon to take, — the requirement of the degree of A.B., or its equivalent before admission to the Medical School. The Law School has already made such a requirement, to take effect at the close of the year 1895–96. Even now, as was said in last year's report, the entrance examination should be made more strict, and, at least, equal to that for admission to the Freshmen class of Harvard.

In connection with this matter of having only those with an academic degree enter the Medical School, your committee cannot but feel that the time required to secure the degree of A.B. might be shortened, and some of the work in the last year at college might be in line with and count in the work of the Medical School. Or, if that is not allowed, why should not a degree be conferred if the student can, after a proper residence in college, pass the required examination and thus secure his A.B. in three years or less, and at the end of his four years in the Medical School, if he can secure his *cum laude* in his examination, take his A.M. and his M.D. at the same time? It does seem as if those students who intend to continue their studies and to enter the profession of Medicine, Law or Divinity, should not be compelled to spend so much more time, and to wait four years for a degree that they might secure in three; for time to them is more important, to say nothing of money, than to those who intend to go into business or devote themselves to a life of leisure after finishing their undergraduate life.

There have been some changes in the Faculty; notably the resignations of Professors Knight and Cheever. The resignation of Dr. Cheever calls for more than the mere mention of the fact. He has been connected with the School since 1861: first, as Demonstrator of Anatomy, in 1868 Adjunct Professor of Clinical Surgery, in 1875 Professor of Clinical Surgery, and Professor of Surgery since 1882. The ability, the thoroughness, the conscientiousness of his work is too well known to all to require further comment. He has given additional honor to a chair already distinguished by a Warren and a Bigelow. He has well earned his title of "Emeritus." May he live long to enjoy it!

Of the work of the School in its different departments, there is not much to be said; certainly nothing in the way of criticism.

In Anatomy, there has been an ample supply of material for dissecting, and in the lecture-room, to illustrate the bones, models made of paper pulp of remarkable accuracy and lightness are used. This collection embraces upwards of twenty models, representing all the principal bones of the body, enlarged from three to six diameters, and in addition, quite recently, a model of the base of the skull and face, enlarged six times, has been furnished. This collection supplies to the anatomical department almost unrivalled facilities for teaching osteology in a large lecture-room. In the dissecting-room, too, there are marked evidences of activity and progress. The work of the student is carefully noted, and he is encouraged to make careful observations and to note all anomalies in anatomical structures and relations, and his discoveries are preserved and become part of the anatomical history which is being made.

In Histology and Embryology, in Chemistry, Pathology and Bacteriology, the same activity is seen; earnest and active work on every side, and the capacity of the different laboratories stretched nearly to their utmost.

In Physiology, Associate Professor Howell, on whose appointment only a year ago the Committee on the Medical School were congratulating the Association, and whom the School is now to lose by his call to the chair of Biology at Johns Hopkins, has conducted some experiments in advanced work in the physiological laboratory, which seem to be of sufficient interest to speak of at some length, especially as he has finished his duties here. One series of experiments had for its object the determination of the relation of the calcium salts to physiological irritability. The experiments were made in part upon the heart (of cold-blooded animals) and in part upon nerve

fibres and voluntary muscle. With regard to the former, it was found that a heart supplied with blood from which the calcium salts had been removed by precipitation, was entirely unable to beat. The blood circulating through the heart, in this case, had the normal amount of proteids. If a small proportion of calcium chloride solution was added to the blood, the heart immediately began to beat with normal vigor. On the other hand, it has been shown that a heart fed upon an inorganic diet, calcium salts, *plus* a certain proportion of potassium and sodium salts, will beat as well as though supplied with blood for many (at least thirty) hours. The general conclusion is, that calcium salts are necessary in some way for the development of the internal stimuli which cause the heart-beats. With reference to nerve fibres and voluntary muscle, it was likewise found that the presence of calcium salts is necessary for functional activity. A muscle deprived of calcium will, however, go into *rigor mortis*, thus tending to disprove the theory that this latter phenomenon is essentially similar to a muscular contraction.

A second series of experiments was made to test the validity of a recent theory of blood coagulation. The theory assumes that the fibrin of the clot is essentially an insoluble compound of calcium with one of the proteids of the blood. The object of the experiments was to determine whether fibrin formed under various conditions contains always the same proportion of calcium. It was discovered that the proportion of calcium may vary within wide limits, thus indicating that the theory above stated is incorrect, although the presence of calcium or of strontium or magnesium salts is necessary to the formation of the clot.

In a third series of experiments a careful study was made of the effect of cold and heat upon the different varieties of nerve fibres found in the body, with especial reference to the degree of heat or cold at which the conductivity of a nerve may be suspended without permanent injury to it. It was found that nerve fibres of different physiological activities, though contained in the same nerve trunk, reacted quite differently in this regard. The work gives promise of developing a new method of isolating the different physiological varieties of nerve fibres, especially those contained in the sensory trunks.

In a fourth series an effort was made to learn something of the degeneration and the regeneration of vaso-motor and sweat fibres in cases of section and suture of nerve trunks to the limbs. The sciatic nerve of a cat was chosen for experiment. The work is not completed. As far as it has gone it indicates that in regeneration of nerve trunks the motor and sensory fibres regain functional activity before the vaso-motor and sweat fibres, the latter belonging to the class of non-medullated fibres. No previous work seems to have been done upon this point.

Your Committee, while acknowledging that the work of the School is so good, that the teaching of the Theory and Practice of Medicine and the Clinical Instruction is of the best, still feel that it may be open to question whether there could not be more use made of the great abundance of clinical material offered by the Boston Dispensary and private dispensaries and hospitals. The out-patients' rooms of the Massachusetts General Hospital and City Hospital, and the Boston Dispensary, show about 100,000 out-patients a year, and in the wards over 10,000 are treated, not including in this estimate the Eye and Ear Infirmary, the Carney, or other small or special hospitals. Of course, both medical and surgical cases are included in these figures. All of the upper classes of students have opportunity to act as assistants to the house-officers or to the surgeons or physicians to out-patients; and are instructed in the surgical rooms in bandaging and minor surgery. In the medical cases diagnosis and treatment are taught, but, of course, in a more or less hasty way — a "snap" diagnosis often being all that there is time for. The cases, too, are generally chronic, often dyspeptic. Of course, in addition to this comes the work done under the eye of the different professors or of the clinical teachers in the wards and in the lecture-rooms.

Without in any way attempting to disparage the value and importance of this teaching — on the contrary, sure of its usefulness and necessity — they cannot but feel that there is room for more and better work where the student is thrown upon his own resources under the general direction of some physician. It seems to your Committee possible to have students from the third and fourth classes take charge of a certain number of patients who otherwise would be treated by the district dispensary physicians. They might be directed to call in such physicians in cases of emergency, and report to him all the facts of the case. What an advantage to the student to see the early stages of disease, to make his diagnosis and direct the treatment of some acute case upon his own responsibility! Why not have this a compulsory part of his work (as in the obstetrical department, where he is compelled to have attended, at least, six cases of confinement), and to submit a full report of each case he has had the care of — diagnosis, treatment and temperature chart — to the clinical instructor of the class?

But it hardly seems necessary to enlarge upon the subject; to state it, is enough to commend its immediate adoption. That there may be difficulties is possible, but they can undoubtedly be overcome. On the part of the patient, it does not seem as if there would be any objection. If there is no trouble in finding women who are thankful to trust themselves to the care of a student while in labor, it does not seem possible that they would refuse similar service while they or some of their families are sick with measles, pneumonia, diarrhœa or consumption. With this, or something like this, added to the present methods of instruction, the Harvard Medical School will give to its students an education that combines, to a degree not yet attained in other medical schools, the best theory with the practice of medicine.

The course of six lectures by Prof. H. C. Wood, of Philadelphia, provided by this Association, excited a good deal of interest and was well attended. By his graphic style he held closely the attention of his audience while speaking simply of the dry details of certain well-known articles of the Materia Medica. It would be wise, undoubtedly, to have a similar course another year on some special subject of medicine or surgery.

The suggestion in last year's report on the Harvard Medical School, of giving additional importance to the department of Materia Medica and Therapeutics, including with it Hygiene in its broadest sense, and having at its head a man of "broad culture" and sound experience, meets with our hearty approval.

To secure such a man the School needs money, — it needs money, too, in all the other departments, — endowments large enough to enable the School to have the best men to be found, and to pay them salaries that will enable them to live without having to do outside work, which, of course, in many cases hinders them from doing the best they can in their special line of work. Then, too, with the growth of the School, with the new demands for biological, bacteriological and physiological laboratories, the expenses of the School increase in a much greater ratio than its resources. It is a cause for regret that the graduates of the Medical School, as well as those of the Law and Divinity Schools, are still denied a voice, or vote, rather, in saying who should govern them.

THE DINNER.

The annual dinner was at the Hotel Vendome, at one o'clock. About one hundred and sixty-eight members were present.

The President, DR. J. R. CHADWICK, opened the speaking with an address referring to the success which has attended the adoption of the four years' course at the Harvard Medical School. Gratifying as the increase of students is, he pointed out that the additional year calls for increased clinical opportunities, and these can hardly be supplied without a hospital under the absolute control of the Faculty. "That some friend or friends of the Medical School will endow such an institution must be," he said, "the aim of our hopes and efforts." Dr. Chadwick then spoke of the recent vote in the Board of Overseers against extending the franchise:

"I have said that in the early universities the degree in Arts was a prerequisite for admission to the other Faculties. This is not the case with us, although its desirability is not questioned. The last report of the Dean of the Harvard Medical School contains a table showing that, since 1884, the proportion of students entering the School who are graduates either of colleges or scientific schools has steadily declined until now they represent only 28.2 per cent., a little more than half the ratio of 1884, when it stood at 53.9 per cent." After attributing this difference to the policy which has so raised the requirements in the Academic Department as to deter aspirants for professional degrees from seeking the A.B. first, he continued: "This might truly be called, in phrase of medical terminology, a *boomerangoid* policy. While this is the most important reason for our seeking to have the suffrage in the election of Overseers extended to the alumni of all the departments of the University, I wish to call your attention to two instances of definite injustice under which the Medical School is suffering under the present government.

"In 1772, Dr. Ezekiel Hersey, of Hingham, gave the sum of $1,000, the interest of which was to be appropriated to the support of a Professor of Anatomy and Physic. In 1790, the widow of Dr. Hersey bequeathed the sum of $3,353.95 to the support of the same professor. In 1794 or 1795, Dr. Abner Hersey, of Barnstable, bequeathed £500 'for the encouragement and support of a Professor of Physic and Surgery.' In 1792, a legacy of £400 was left the College by John Cuming, of Concord, the income of which was for the 'Professor of Physic.' In 1812, Esther Sprague gave $2,000 'towards the support of the Professor of the Theory and Practice of Physic.' It is admitted that these funds were given 'to promote medical education as a matter of distinctive professional training.' How do you suppose the income of these funds is used? Two-fifths is allotted towards paying the salary of the Hersey Professor of the Theory and Practice of Physic in the Medical School, while the other three-fifths goes to pay the salary of the professor in the Museum of Zoölogy, who gives no instruction 'to promote medical education.' The Medical School has repeatedly made a claim for the use of the whole income of these funds to the Corporation, and at least once to the Board of Overseers, invariably without success.

"Secondly. You all know that the University Library has large special funds for the purchase of books for the use of the professors and students; that books are purchased on demand of the professors and sent to the different laboratories and departments for immediate use, and are recalled to the central library as soon as their immediate usefulness has passed. The claims of the Medical School to participate in this privilege have been persistently ignored.

"With such instances of injustice, narrowness and partisanship, it behooves all the professional schools to unite in making the extension of the suffrage in the election of Overseers the chief qualification of candidates for that Board."

Dr. Chadwick then alluded to the gift by Miss Lucy Ellis, of $2,000 annually for five years to the Department of Physiology and Pathology, and of a $100 scholarship bequeathed by the late Dr. O. W. Doe, '65, he also spoke of the extra *Bulletin* issued by the Association, and of the lectures by Dr. H. C. Wood, of Philadelphia.

DR. DA COSTA, of Philadelphia, spoke on medical education, which, he said, is a matter of constant dispute and agitation because medicine itself is a most progressive science.

"The chief difficulty in making a high standard universal lies in the number of the medical colleges. It is, indeed, a sorry admission that the medical schools in this country are the greatest enemy to medical progress, not in themselves but in their number. Some years ago there were nearly three hundred; now there are not far from one hundred and fifty, and they are dying at about the rate of three a year, without, it must be said, many mourners. A further reduction would be a national benefit. The remedy lies in their amalgamation. Let the absurdity cease of small towns having three, four or six of these struggling institutions, no one of which can have a vigorous life.

"There is now all over the country a growing disposition for the universities to take charge of medical teaching and to develop their medical departments with all the zeal they give to the others. We see it in Michigan; we see it in California and Colorado; we see it in Louisiana and Texas as strikingly as in our Eastern States. There is nothing but good in this. The power, the means, the spirit of the university go out to its branch; the university in turn gains by the reputation of its medical faculty, and by the recognition that medicine is an essential part of the new learning which leads on to the highest attainable civilization."

Dr. Da Costa then spoke in favor of exacting more stringent educational requirements for matriculation. He said that 129 out of 148 medical colleges in the United States and Canada have adopted some standard

of general qualifications; and even where the requirements are shadowy, they still indicate a move in the right direction. The country is not yet ready to have medical colleges demand of their students a degree in Art or in Science. The universities, he urged, must shorten their course, and in every way offer facilities to those who wish to study medicine. He gave some figures to show how rapidly the proportion of Bachelor of Arts has decreased in the leading medical schools, but he asserted that the average mental training of medical students is higher than ever; and he said that our American colleges must learn the system of the German universities, at which, during the past fifty years, only 23.1 per cent. of the students have been over twenty years old. He gave warning against trying to put too many subjects in the curriculum. "The medical student cannot master them all. . . . Teach some subjects thoroughly, and let the rest alone. . . . Allow him, after the first year, to choose for himself much more than he is now permitted to, with full knowledge of the subjects required at the final examination."

Dr. Da Costa also spoke of the need of large endowments; but most important, he said, are great teachers. "Who goes to Paris without thinking of Lænnec, Andral, Trousseau and Nèlaton? Who visits Vienna and does not have before him Rokitansky, Skoda and Oppolzer? Who can go to Berlin and not think of Langenbeck and Frerichs, or to London and be unmindful of Hunter, and Cooper, and Bright? Who comes to Harvard and does not remember the Jacksons, and Bowditch, and Bigelow, and Clark, and Ellis, and Storer, and Shattuck, and many others of fame?" He closed with a tribute to Dr. Holmes, and with a prognostication of progress at Harvard.

Dr. Abraham Jacobi, Professor of Children's Diseases in Columbia College, was next called upon. He pointed out the great influence which the profession at large, apart from instructors in the medical schools, has wielded in advancing the standard of medicine. Averting to the general requirements demanded of would-be medical students, he said that no academic examination in general education should be passed after matriculation, because after matriculation all the student's time should be devoted to his medical studies. He recalled how the general course has been lengthened by the addition of laboratory and clinical work. "We have too many schools, too many doctors, too many students. We can do with fewer doctors provided the quality of both the doctors and the people will continue to improve. We are, as a profession and a teaching body, responsible for the condition of things, medical and hygienic, which concern the State, the people at large and mankind."

Dr. Jacobi then related how in Germany, the medical students who graduated with honors were kept in the large cities, while the others went out into the provincial towns and villages. He spoke of the subjects to be studied in the fourth year of the extended course — clinical teaching, embryology, the history of medicine itself (which has been sadly neglected) and legal medicine and medical jurisprudence. He predicted that men would learn to think more quickly. He concluded by describing the different ways in which professors get their appointments, and the service done by the humbler practitioner not less than by the most brilliant original investigator.

The last speaker was Prof. W. S. Chaplin, Chancellor of Washington University, St. Louis. He announced that St. Louis has eleven medical schools and that this excessive number is due to the fact that the people do not understand what science, education, culture mean. It is also convenient for a specialist, he said, to make known the fact that he is a specialist by advertising himself as a professor in a medical school. He then gave an illustration of the worthy self-sacrifice of the professors in one of these very schools. The people of the West, he remarked in closing, are quick to learn, and as soon as they see examples of first-rate medical schools in the East, they will be certain to imitate them.

AMERICAN OPHTHALMOGICAL SOCIETY.

Twenty-ninth Annual Meeting at New London, Conn., July 19 and 20, 1893.

The Society was called to order by the Vice-President, Dr. George C. Harlan, of Philadelphia, Pa.

THE RELATION OF THE PATELLAR-TENDON REFLEX TO SOME OF THE OCULAR REFLEXES FOUND IN GENERAL PARALYSIS OF THE INSANE,

by Dr. Charles A. Oliver, Philadelphia.

The following formulations were offered:

(1) In some of the cases in the second stage of the disease, especially where the patellar-tendon reflexes were unequally exaggerated, there appeared to be an irregular and unequal spastic enervation of the two irides, causing irregularities in pin-point pupil forms.

(2) In a few cases, especially in the third stage of the disorder, where the patellar-tendon reflexes were unequally diminished, the pupil-size though small and its shape though somewhat irregular, seemed to be but little acted upon by any powerful mydriatic.

(3) In many cases, especially in comparatively young subjects in the third stage of the disease where the patellar-tendon reflexes were unequally diminished there appeared to be an unequal paralytic ennervation of the two irides; the pupillary dilatation manifesting itself at times, though not as a rule, in the eye with the greater amount of objective optic-head degeneration and retinal change.

(4) In a few cases (especially in men beyond middle life) in the third stage of the disorder, where the patellar reflexes were markedly diminished and where the ataxias were quite pronounced, there were marked temporary assymetries of pupillary form, one often being quite small and irregular for several examinations, whilst its fellow was large and ovoid or oval.

(5) In quite a number of cases, especially in the advanced stages of the disease (although seen in a number of cases in their earliest stages) where the patellar-tendon reflexes were unequally exaggerated or diminished, there was a failure of the irides to respond to even major degrees of light stimulus; this being true not only for those subjects exhibiting a true spastic myosis but more especially shown in those instances where with partial dilatation of the pupil, mydriatics failed to act.

(6) In many instances, especially in the older cases where the patellar-tendon reflexes were, as a rule, unequally diminished or even lost, there was not only failure of iris-response to the strongest light stimulus carefully thrown upon the retina, but where obtainable, the irides seemed to fail to react to the various

coarse and rough subjective and objective procedures necessary to be used in order to evolve both separated and associated efforts for accommodation and associated efforts for convergence.

(7) In some instances, where ciliary muscle innervation could be satisfactorily obtained, both the spastic excitation and the paralytic enervation at times found by subjective reading tests and objective study with the retinoscope, seemed to be in direct ratio with the patellar-tendon reflexes as the iridic changes.

(8) In quite a number of cases where there was marked inequality of the pupils with more or less want of reaction of the irides to light stimulus the patellar-tendon reflex on the side of the larger pupil seemed to be the one the more greatly diminished.

(9) In a number of instances, especially during the very earliest stages of the disease, where the patellar-tendon reflexes were beginning to lessen to unequal degrees, there often appeared momentary secondary ataxic dilatation of the pupil during exposure to strong light stimulation.

(10) In many cases, especially during the second stage of the disorder, when the patellar-tendon reflexes began to become irregular and inconstant, pupillary inequalities as expressive of unequal iris innervation and action, became more and more constant.

CLINICAL HISTORY OF A CASE OF SPINDLE-CELLED SARCOMA OF THE CHOROID WITH A STUDY OF THE MICROSCOPIC CONDITION OF THE GROWTH,

by DR. CHARLES A. OLIVER, Philadelphia.

The patient, a man thirty-four years of age, consulted the writer on account of trouble with the left eye. Five years previously he suddenly noticed that objects situated to the right became dimmed when he attempted to look at them with the left eye. This gradually and painlessly extended over the whole field of vision until in a little more than three years the eye became blind.

In June, 1890, a tumor of the choroid was discovered by Dr. J. H. Thompson, of Kansas city. There was a history of syphilis but treatment had no effect upon the growth and a diagnosis of sarcoma was made and operation urged but not accepted.

When seen by the writer in June, 1892, a large vascular growth was seen in the upper part of the globe. Immediate enucleation was advised and accepted. The operation was done the following day. The patient has recently been seen and is perfectly well with no evidence of return.

Microscopical examination showed the growth to be a spindle-celled sarcoma.

SARCOMA OF THE CHOROID,

by DR. EMIL GRUENING, of New York.

The patient, a woman aged thirty years, was seen April 17th on account of diminution of sight in the right eye. The ophthalmoscope showed the retina in the macular region pushed forward. This projection was about four discs in diameter. This had given rise to no symptoms with the exception of a scotoma. Sarcoma was diagnosed and the eye was removed. Examination showed the growth to be a spindle-celled sarcoma.

SARCOMA OF THE EYE-LID,

by DR. EMIL GRUENING, of New York.

This affection is exceedingly rare, the case reported being the only one seen by the author. The patient was a young man twenty-three years old. He came under observation January 1, 1893. Five years previously he had noticed a small swelling in the lower lid of the right eye. This bled freely and irregularly. It was operated on in another city but soon recurred. When seen it was as large as a hazel-nut and involved two-thirds of the lid with a nodular mass on the inner surface of the lid which readily bled. The skin covering the mass was freely movable. A small portion of the growth was removed and found to be sarcoma. The tumor with the entire thickness of the lid was then removed and the lid restored by a plastic operation.

DR. H. KNAPP in the discussion reported two cases of traumatic sarcoma of the lid, both terminating fatally.

TUMOR OF THE IRIS, PROBABLY TUBERCULAR,

by DR. GEORGE C. HARLAN, Philadelphia.

The patient, a male child, was born September 5, 1890. In February, 1893, weakness of the right eye with photophobia and lachrymation was noticed. The child was first seen March 6, 1893. There was some conjunctivitis but no chemosis. There was a small posterior synechia. A number of small yellowish-white rounded nodules were noticed on the periphery of the iris. These increased rapidly in size and others were added. The deposit increased rapidly and soon filled the upper outer third of the anterior chamber and completely covered the pupil. Intense photophobia of the sound eye developed and enucleation of the diseased eye was done March 15th. After the operation the condition of the child rapidly improved. Microscopical examination indicated that the lesion was probably tubercular although bacteriological examinations gave negative results.

REFLECTIONS UPON A DISASTROUS CASE OF OPHTHALMIA NEONATORIUM,

by DR. B. ALEX. RANDALL, of Philadelphia.

Dr. Randall referred to the great importance of strong clear-cut expressions in relation to preventable disease in order that the community and the profession may be properly aroused to the dangers of the situation and spurred to thorough and persistent efforts to combat them. Yet such expressions have danger to those using them and to others, since careful precautions may fail to prevent the disease or bring it to a successful termination. This point was brought painfully home to him by a disastrous case of ophthalmia neonatorium in which he could find no fault with the prophylactic or the therapeutic measures, yet both eyes were lost. Some authoritative statements as to the preventability and curability of the disease were repeatedly called to the attention of himself and the accoucher. He wished to protest against too uncompromising claims as to the powers of medical measures since such may be two-edged weapons which turn most seriously against their authors or other medical men who have really done all that human means could effect.

CLINICAL NOTES ON SOME REFRACTIVE AND MUSCULAR CASES,

by DR. B. L. MILLIKEN, Cleveland, Ohio.

In very high degrees of astigmatism the use of the ophthalmoscope is the most satisfactory method of testing refraction. Six cases were cited where attempts were made to correct by the ordinary means of

testing with no satisfactory results while the ophthalmoscope gave most excellent correctness. In one case, a lad of thirteen years with history of fronto-temporal headache for years, had a high degree of mixed astigmatism in the left eye which under a mydriatic gave no satisfactory results, but with the ophthalmoscope the following was obtained, the right eye having only a moderate degree of astigmatism:

O. S. + 4 D. cylinder axis 20° ⌒ 4 D. cylinder axis 110°. V = $\frac{6}{6}$.

This glass with the proper arc for the right eye gave great relief and has been worn with comfort.

In another case, that of a man aged thirty-nine, there was high mixed astigmatism in both eyes and especially marked in the right eye which with a mydriatic had to be worked out with the ophthalmoscope and gave the following:

O. D. — 10 D. cylinder axis 90° ⌒ + 7 D. cylinder axis 180°. V = $\frac{6}{6}$.

O. S. — 6 D. cylinder axis 100° ⌒ + 4 D. cylinder axis 10°. V = $\frac{6}{6}$.

These glasses have been worn constantly for two years with the greatest comfort, the man working all day at book-keeping. The ophthalmometer showed great irregularity in the images and could not be used with any accuracy in testing the refraction.

Several cases were reported showing what could be done with prisms in correcting muscular insufficiencies and the question was brought out as to the advisability of wearing prisms at various angles for the purpose of correcting both a lateral and a vertical muscular insufficiency with the same glass; for instance, in a case of a lateral insufficiency of say 1° and a vertical insufficiency of 1°, instead of making two prisms to correct, one at 90° and the other at 180°, place a 2° prism at 45° or 135°, right or left, as the case might be. The histories of several cases of this kind were given in which patients had worn the glasses thus with much benefit, and a trial of this kind was urged.

SEVERAL CASES IN WHICH THE VERTICAL DIPLOPIA TEST PROVED UNTRUSTWORTHY,

by Dr. Samuel Theobald, Baltimore.

Four cases were described in which the cover test showed a high grade of exophoria, both in distant and near vision, but in which the vertical diplopia test failed entirely to demonstrate the presence of the condition, in some of the cases even indicating esophoria. In one of these cases and also in a case of esophoria, the notes of which were given, it was found that when, during the application of the vertical diplopia test, the cover test also was employed, a squint would show itself in the excluded eye, which the vertical prism failed to bring out, and which would disappear upon the removal of the cover, though the vertical diplopia was still maintained, showing that the latter had no controlling influence over the action of the lateral muscles. The cases, such as described, in which the vertical diplopia-test proved untrustworthy are, however, comparatively rare and the writer still employs it daily and considers it of the greatest value.

AN ADDITIONAL NOTE IN REFERENCE TO THE CASE, USEFUL VISION MAINTAINED BY MEANS OF A TOTALLY DISLOCATED LENS, HERETOFORE REPORTED TO THE SOCIETY,

by Dr. Samuel Theobald, of Baltimore.

The feature of interest was that a fragment of the dislocated lens, the capsule of which had ruptured two years before, fell through the pupil into the anterior chamber where it remained for six months, resisting the solvent and opacifying action of the fluids of the eye so completely as to retain its transparence and its sharply cut angle. It closely resembled a bit of yellowish glass and might easily have been mistaken for a foreign body. As its presence in the anterior chamber began to cause considerable irritation, the pupil was dilated and it was caused to fall again into the vitreous chamber, its return to the anterior chamber being prevented by the application of a myotic. This was followed by the disappearance of the irritation which has not since returned. The insolubility of the lens fragment is the more remarkable in view of the fact that the patient was but twenty-two years old at the time the lens capsule ruptured.

A SERIES OF WOOLS FOR THE READY DETECTION OF COLOR BLINDNESS,

by Dr. Chas. A. Oliver, Philadelphia.

The following modification had been made by the writer in the Holmgren series.

Five individual tests are employed, pure green, pure red, rose, pure blue and pure yellow. Loose and separate skeins of wool were employed. The colors were made of equal relative intensity. The value of the color used in each test skein was expressed. The set was so constructed that it could be used by any intelligent layman.

The test was so constructed that passing color changes could be preserved and permanently kept for future comparison, and so that written and verbal expressions of the character and the amount of the sub-normal color perception could be given. The wools were made of one grade of manufacture and dyed with vegetable material.

After several years' trial the writer found that he could dispense with all but the five principal test skeins, five pure match skeins and eighteen confusion skeins of relative equal value to the pure match skeins.

AFTERNOON SESSION.

GOUTY RETINITIS, CHORO-RETINITIS AND NEURO-RETINITIS,

by Charles Steadman Bull, M.D., of New York.

The paper was based upon a study of the retinal changes found in over one hundred cases of gouty patients. Five of these cases (two with autopsy) were reported in detail. The points to which attention was drawn were:

(1) The changes in the fundus are always bilateral though rarely symmetrical in the two eyes.

(2) The degeneration in the walls of the blood-vessels and in the retina cause marked impairment of central vision, little or no impairment of peripheral vision, and never end in blindness.

(3) The loss of central vision is always progressive up to a certain point, unless the cause of the disease is recognized early in the outset and immediately and properly handled. Improvement of the vision after the disease is established cannot be expected.

(4) Hæmorrhages into the retina are rare except in the beginning of the disease. Their absence later is probably due to the fact that the strength of the vascular wall is increased by the deposit, though its elasticity is diminished.

(5) The most marked feature in the fundus is the development of the arterio-sclerosis and phlebo-sclerosis. This is seen by the ophthalmoscope in the vessels of the retina and the microscope shows that the degeneration exists as well in the vessels of the choroid and optic nerve.

(6) Another almost equally pathognomonic symptom is the peculiar yellowish granular exudation in the retina, located by the ophthalmoscope around the posterior pole of the eye and generally leaving the macula intact and proved by the microscope to be mainly in the nerve-fibre layer, though found in all the layers except that of the rods and cones.

(7) The changes in the optic nerve-fibres seem to be almost entirely intra-ocular and cannot be traced for any great distance back of the eye-ball.

RETINITIS PUNCTATA ALBESCENS,

by DR. MYLES STANDISH, Boston.

These cases are not uncommon, yet the literature of the subject is surprisingly small for a condition which presents such a striking picture to the ophthalmoscope. The majority of cases come on account of some discomfort in the use of the eyes, and the white rounded, glistening spots are discovered in the retina in the course of the examination. After a time, comfort in the use of the eye returns, but without the spots disappearing; what the substance is that produces the appearance is undetermined. A case was reported which was of special interest as it apparently filled out the clinical history of these cases in the predromal and acute stages.*

REMOVAL OF HARD CATARACT BY SUCTION,

by DR. LUCIAN HOWE, of Buffalo.

It is probable that every operator has occasionally experienced difficulty in completing the final act of extracting the lens. In order to obviate this difficulty, the writer had employed an instrument similar to a large dropping-tube, by means of which a partial vacuum could be made. The tube was applied to the protruding lens, enabling the operator to draw it out.

DR. FRANK W. RING, of New York, exhibited an

OCULAR MASK OF PAPIER-MACHE

to be used for the protection of the eye after cataract operation.

THE ARTIFICIAL RIPENING OF CATARACT,

by DR. EDWARD JACKSON, Philadelphia.

A series of cases were reported which had been treated by tapping the anterior chamber, drawing off the aqueous humor, and massage of the lens, through the cornea as suggested by Pooley and advocated by White.

The operation was followed by very little reaction; there being no iritis or posterior synechia in any case. In patients over fifty years of age, the operation was followed by rapid increase in the opacity of the lens and early maturity of the cataract. In patients under thirty-five years of age no effect upon the existing lens opacity was produced.

The author concluded that this method of ripening cataracts was certainly more efficient than that of Forrester — iridectomy and massage; was almost entirely free from danger, and was probably a better means of avoiding prolonged practical blindness than the extraction of the immature cataract.

A CASE OF TRAUMATIC DISLOCATION OF THE IRIS UNDER THE UNBROKEN CONJUNCTIVA, THE EYE DAMAGED BUT PRESERVED, TYPICAL SYMPATHETIC OPHTHALMIA IN THE OTHER EYE,

by DR. HERMAN KNAPP, of New York.

Mr. M., forty-five years old, came under observation December 21, 1892. Ten days before, his left eye had been struck with the head of a small pet dog with which he was playing. The eye had been red and black ever since, but not painful, the sight impaired. On the inner side of the cornea and two millimetres from its margin the conjunctiva was raised by a black mass, which proved to be the iris. The conjunctiva showed no wound or scar; the whole iris was found absent from its normal position; the lens was in place and transparent; there was no neuro-retinitis or isolated rupture of the choroid. Vision equalled $\frac{15}{200}$. The patient was directed to bandage the injured eye lightly, and not use the other eye, and keep quiet. Everything did well until twenty-nine days after the accident when symptoms of sympathetic inflammation appeared in the right eye. Under active treatment, the attack subsided, but relapses occurred, and vision in the right eye was completely lost. In the left eye vision equals $\frac{20}{70}$, and the displaced iris has shrunken to a flat blackish mass scarcely raised above the conjunctiva.

(To be continued.)

Recent Literature.

On the Chemistry and Therapeutics of Uric Acid, Gravel and Gout. Being the Croonian Lectures for 1892, delivered before the Royal College of Physicians of London. With additions. By SIR WILLIAM ROBERTS, M.D., F.R.S. London: Smith, Elder & Co. 1892.

In these four lectures, which should have received earlier notice, the author gives the results of an elaborate investigation of the chemistry of uric acid, gravel and gout. The principal conclusions arrived at concerning the occurrence in the body of free uric acid and urates in the physiological and in the pathological state are:

(1) That free uric acid is not known physiologically; neither in the body nor in the urine. It is known clinically and pathologically as crystalline sediments in the urine, and as gravel and calculus in the urinary passages.

(2) That neutral urates are not known physiologically nor pathologically.

(3) That bi-urates occur pathologically as components of gouty concretions in the tissues; that they are known in the urine only after this secretion has undergone ammoniacal fermentation; and that it is doubtful if they ever exist physiologically in the blood or tissues.

(4) That the quadri-urates are specially the physiological combinations of uric acid; that they exist normally in the urine and probably also in the blood; and that all the morbid phenomena due to uric acid arise probably from secondary changes in the quadri-urates.

There is an inherent tendency in normal acid urines to the liberation and precipitation of uric acid. Pathological gravel may, therefore, be regarded as due to an exaggeration of conditions which prevail, in a less pro-

nounced degree, in the normal state. The conditions of the urine which tend to accelerate the precipitation of uric acid are, the author concludes, high acidity, poverty in salines and in pigments, and high percentage of uric acid. And, conversely, the conditions which tend to postpone precipitation are — depressed acidity, richness in salines, richness in pigments, and low percentage of uric acid. On the interaction of these factors the occurrence or non-occurrence of uric acid, gravel appears to depend; and the most important of these factors is the grade of acidity.

When concretions are once formed in the kidneys or bladder, there is little prospect, in the author's opinion, that they can be dissolved by imparting solvent qualities to the urine. Good results may, however, be expected in the field of prophylaxis. The paramount indication of preventive treatment is to diminish the acidity of the urine by the administration of alkalies or alkaline mineral waters.

The author accepts the view that bi-urate of sodium in the crystalline form is the essential constituent of the chalk-like deposits found in certain parts and tissues of the body in cases of gout, and that the deposition of this substance is the actual cause of the joint troubles of gout. He formulates the following general theory of urate precipitation. In the normal state, uric acid circulates in the blood as quadri-urate, and is finally voided as such with the urine. But in the gouty state, either from defective action of the kidneys, or from excessive introduction of urates into the circulation, the quadri-urate accumulates in the blood. There, circulating in a medium which is rich in sodium carbonate, it gradually takes up an additional atom of base, and is thereby transformed into bi-urate, which is less soluble, and probably, also, less easy of removal by the kidneys. The bi-urate thus produced exists at first in the hydrated or gelatinous modification. But with the lapse of time and increasing accumulation it passes on into the almost insoluble anhydrous or crystalline condition; and then precipitation of it becomes imminent, or actually takes place.

The mechanical theory seems to the author to offer the most natural and complete explanation of the phenomena of regular gout. He does not accept the theory of a poisonous action which has been brought forward in explanation of the phenomena of irregular gout. He is inclined to attribute the latter also to the local action of slighter precipitations of urates upon the membranes of the brain or upon the fibrous sheaths of the nerve-roots.

In the consideration of the therapeutics of gout, the author recommends restricting the ingestion of nitrogenous food, and increasing that of vegetable food. The latter has no direct influence on the production of uric acid, but the free consumption of articles of vegetable origin tends to restrict the in-take of nitrogenous food, and thus has indirectly the effect of diminishing the production of uric acid. His experiments show that sodium chloride, even in very small quantities, always appreciably hastens the precipitation of the crystalline bi-urate. He therefore recommends gouty patients to restrict, as far as practicable, the use of common salt. In discussing the use of mineral waters, the author holds that gouty persons should entirely avoid waters which owe their activity to sodium salts, or should use them very sparingly, since sodium salts hastens the precipitation of sodium bi-urate. Waters which contain but a small quantity of mineral ingredients are the most useful. These act to dilute the blood, and lower its percentage of urates and sodium salts.

Carbonate of lithium and piperazine have been recommended for use in the treatment of gout on strictly chemical grounds. The author's experiments show that the addition of these substances to blood-serum or synovia had not the slightest effect in enhancing the solvent power of these media or sodium bi-urate; nor the slightest effect in retarding its precipitation from serum and synovia artificially impregnated with uric acid. Their beneficial action, if any, is not due, therefore, to their solvent action on the material of gouty concretions.

Brain Surgery. By M. ALLEN STARR, M.D., Ph.D., etc. 8vo, pp. xii, 295. With fifty-nine illustrations. New York: Wm. Wood & Co. 1893.

"It is the object of this book," says the author, "to state clearly those facts regarding the essential features of brain disease which will enable the reader to determine in any case, both the nature and the situation of the pathological process in progress, to settle the question whether the disease can be removed by surgical interference, and to estimate the safety and probability of success by operation." To accomplish the first object in every case is as yet beyond our attainments, and to state all the facts would require a treatise instead of the score of pages which the author has devoted to the exposition. What he has done is to collect, chiefly from American sources, a large number of cases of brain disease, where an operation has been performed, to add to them a number of original cases, and to attempt to draw deductions from these data. The result is a work which is interesting and not without value, but, nevertheless, it is far from satisfactory. It would seem as if it were time to make a critical estimate of the results attained by brain surgery in the last nine years, but, in point of fact, it is still in some respects too early, and the work before us bears evidence of haste and inaccuracy. Nearly a hundred pages of the book are devoted to the subject of trephining for epilepsy, and this chapter is a good example of some of the most serious faults in the work. The discussion practically is limited to Jacksonian epilepsy, and the author, in his preliminary remarks, states that the character of these attacks "denotes the exact position of the disease in the brain," apparently ignoring the evidence brought forward by various authors to show that the Jacksonian attack has comparatively slight localizing value. He reports thirteen cases of his own — one of which is manifestly a case of tumor of the brain and does not belong here — and claims that three were cured, yet in these, as in every other case, the convulsions recurred after the operation. In his own cases, and in those he has collected from literature, moreover, too little time has elapsed since the operation for us to say, even if the fits have not recurred, that the case is actually cured. Hence, the thirteen alleged cures in forty-two cases, cannot be accepted. Van Gieson's admirable study of the pathology of two of the cases —by far the best thing in the book — shows how little permanent benefit can be hoped from surgical interference. It is, nevertheless, true that trephining will cause a temporary cessation of the attacks in some cases, although the patient may eventually relapse into as bad a condition as before the operation. Hence we may accept, with some modifications, the author's

conclusions, that operation may be of benefit, although we doubt if it be curative, and that thus it may be justifiable. The next chapter is nominally on trephining for imbecility due to microcephalus, but the author seems to be in a state of confusion on the whole subject. Trephining for imbecility due to microcephalus, Lannelongue's operation for craniectomy receives no attention, but instead the various forms of cerebral infantile paralysis are discussed, and cases are reported where trephining was done to relieve paralysis or convulsions. The subsequent chapters on trephining for hæmorrhage, abscess, tumor, hydrocephalus, etc., are clearer and more accurate, but they contain little that is new. Trephining for persistent headache, which has more than once been of benefit, meets with no favor in his eyes. The work, on the whole, is below the author's reputation.

A Practical Treatise on Materia Medica and Therapeutics, with Especial Reference to the Clinical Application of Drugs. By JOHN V. SHOEMAKER, A.M., M.D., Professor of Materia Medica, Pharmacology, Therapeutics, and Clinical Medicine, and Clinical Professor of Diseases of the Skin in the Medico-Chirurgical College of Philadelphia; Physician to the Medico-Chirurgical Hospital; Member of the American Medical Association, of the Pennsylvania and Minnesota State Medical Societies, the American Academy of Medicine, the British Medical Association; Fellow of the Medical Society of London, etc. Second edition, revised. In two royal octavo volumes. Volume I, 353 pages: Devoted to Pharmacy, General Pharmacology, and Therapeutics and Remedial Agents not Properly Classed with Drugs. Volume II, 680 pages: An Independent Volume upon Drugs. Philadelphia: The F. A. Davis Company.

The first volume of this work is largely devoted to the consideration of the value of the natural forces and of mechanical and physiological agencies in the treatment of disease; and the prominence given to these subjects is unusual. Heat, Cold, Climatherapy, Electricity, etc., are among the topics discussed. The student and practitioner will find here much that is useful and suggestive, not usually included in a work of this character. The second and larger volume of the two contains an alphabetical list of drugs; and the physiological action and the therapy of each of these is discussed. The list is too long, and some of the drugs are considered in insufficient detail for the student, but the practitioner will find the volume excellent for reference. The index is printed in too small type for comfort.

The Physician's Pocket Day-Book. Designed by C. HENRI LEONARD, M.A., M.D., Professor of Medical and Surgical Diseases of Women and Clinical Gynæcology in the Michigan College of Medicine. Issued annually by the Illustrated Medical Journal Co., Detroit, Mich.

This pocket day-book is arranged to contain the daily record of visits for twenty-five or fifty patients a week for thirteen months, together with ninety-four obstetrical cases. The introduction has a list of doses and various tables for reference.

AT the University of Moscow the fees for the medical curriculum of five years, amount to only £80.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, NOVEMBER 23, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

PATHOGENY OF BRONCHITIS.

THE relation of bacteria to bronchitis has been elucidated by two recent writers, Marfan and Claisse.

A large division of bronchitis comprehends specific infectious forms; another division, the non-specific bronchitis. Every bronchitis, however, according to Marfan,[1] is infectious.

The specific forms attend measles, whooping-cough, small-pox, influenza, etc., and are dependent on the microbe that causes the disease. These forms are "exogenous" or "hæmatogenous"; the germ is brought by the air or by the blood. Most bronchites are exogenous, but those of small-pox, glanders, malaria and secondary syphilis are hæmatogenous.

The non-specific infectious bronchites constitute a large and important class. Under this head are included common bronchitis (*a frigore*), the bronchitis that attends chronic naso-pharyngeal affections, chronic affections of the lungs and pleura, hay fever, gout, heart disease, Bright's disease, etc. To this division is assigned the bronchitis which is present as a complication in all adynamic and cachectic states, as in infectious endocarditis, diphtheria, typhoid fever, diabetes, etc. Bronchitis is the rule in typhoid fever, but it is only a secondary element, and is not due to the presence in the bronchi of Eberth's bacillus.

Marfan's explanation of bronchitis from "catching cold" is substantially as follows:

Acute bronchitis is sometimes occasioned by the respiration of a cold atmosphere which penetrates the bronchi suddenly and violently. But it is not by the direct contact of cold air with the mucous membrane of the respiratory passages that bronchitis is ordinarily produced. It is generally by a sudden chilling of the cutaneous surface, and especially when the body has been overheated by prolonged exercise and is perspiring.

Marfan remarks that some persons have a suscepti-

[1] Traité de Médecine, Charcot, tome iv.

bility to cold when this is limited to certain anatomical regions; for instance, one will have bronchitis if the feet are allowed to become cold, another, if he remains an instant with arms or chest bare, etc. Moreover, cold and damp climates and chilly seasons have a great influence on the development of bronchitis *a frigore*. The same may be said respecting sudden changes of weather. Infants, old people and feeble cachetic subjects are particularly susceptible, for reasons which are sufficiently obvious.

But how does a chill act in provoking an inflammation of a mucosa? The old medical writers supposed that the sweat glands were closed by the cold and that the excrementitious matters of perspiration were retained in the blood. Hence, a general toxæmia, with inflammatory manifestations in parts of least resistance. This notion is now abandoned. Experiments have shown that in animals which are overheated, there is considerable dilatation of the cutaneous vessels; the blood circulates there with force and abundance. If now a sudden chilling is brought about, the blood which distends the peripheral vascular network is cooled in mass and by repercussion cools the organism. This sudden loss of heat causes profound disturbances in the internal organs. Severe congestions result.

But the experimentation stops here, and cannot explain why the fall of the internal temperature engenders bronchitis.

The bacteriological study of the sputa completes the data furnished by experimentation.

Note in the first place, that the upper air-passages and bronchi contain microbes independently of any pathological state. Among these the four following species have been observed which have pathogenic properties: the staphylococcus pyogenes (aureus et albus), the streptococcus pyogenes, the pneumococcus, the pneumo-bacillus of Friedländer. Let now a bronchitis of whatever nature supervene, and it will be seen that these microbes are more abundant in the sputa; new species appear; proteï which are pathogenic and even pyogenic when inoculated in animals; two saprogenous microbes, the one resembling Eberth's bacillus, the other, the bacterium coli commune. Cornil and Babes remark that these microbes are found in all the bronchites: in bronchitis *a frigore*, in influenzal, tuberculous, morbillous bronchitis, etc. Marfan, besides those above mentioned, has also found the pneumococcus in the exudation of almost all the bronchites which he has examined. Pausini declares that the streptococci are the only micro-organisms met with constantly in the sputa, both in bronchitis and in health. He describes eight different species of these streptococci, several species of fungi, twenty-one species of bacilli, ten species of micrococci. Frick has studied the chromogenic bacteria which give to sputa their green color.

Marfan, in summing up these bacteriological results, asks what conclusion can be drawn therefrom concerning bronchitis *a frigore*? Although the direct demonstration has not been made, it is difficult not to think that all these microbes have a real pathogenic influence. Whether they live normally in the respiratory passages or whether they come from the atmosphere, it must be admitted that the cold favors their fixation and their pullulation in the mucosa of the bronchi.

The solution of the problem then consists in knowing why the perturbation caused in the organism by the cold, favors this development of micro-organisms. In the normal state the system defends itself against microbes by the bactericidal properties of the serum and the phagocytic properties of the anatomical elements. These two sets of properties are in part dependent on the nervous system. It is very likely that the profound perturbation produced by the cold on the internal calorification brings about a disorder of the vaso-motor innervation which causes congestion and places the organism in a state of lessened resistance, and just in those localities (respiratory passages, skin, intestine) where microbes are normally present we see inflammations set in of microbic origin which are properly designated infectious, non-specific.

It is easy to conceive that a first attack of bronchitis diminishes the power of defence of the bronchi and leaves behind certain microbes that are more virulent, and this naturally favors recurrences.

What is said of bronchitis *a frigore* is just as applicable to coryza from cold, and when the two co-exist, the explanation may be as follows: Either the cold acting in the same manner on the nasal and bronchial mucosa favors the microbian invasion, simultaneous or successive, of the two mucosæ; or the coryza alone is produced by the cold, and the microbes having acquired their virulence in the nasal fossæ invade later, by simple propagation, the tracheo-bronchial mucosa. There is nothing at the present time that indicates which view of this pathogency is the more correct. Certain it is, however, that bronchitis *a frigore* is generally preceded by a coryza; and it is regarded from a clinical point of view, a descending bronchitis.

The article of Claisse (*Semaine Médicale*, 1893, p. 297), adds to the above statement the notion of intoxications by microbe secretions. The presence of the microbe in the bronchi manifests itself by local effects on the tubes and by general toxic effects.

The local effects are expressive of the secretory reaction of the bronchial tree; this, in certain conditions, may lead to a more or less extensive obliteration of the air-passages and give extreme gravity to the prognosis. But the bronchial secretions may also have a marked toxic influence; this is a pathogenic factor that has been too much overlooked. The toxæmia explains the general phenomena, the temperature, and to some extent, the dyspnœa.

Claisse has made some interesting experiments to determine the nature and quality of these toxines, and has worked out the bacteriological problem with considerable success; but the details of these researches may be considered later.

EPIDEMIC INFLUENZA.

IN a further report to the English Local Government Board,[1] Dr. Parsons continues the excellent work on the subject of epidemic influenza begun two years ago. This report contains further observations upon the epidemic of influenza of 1889–90, and upon the succeeding epidemics of the spring of 1891 and the winter of 1891–92. It embodies much statistical information upon the incidence of the disease in its fatal form, upon age, sex and locality, and other conditions affecting the epidemic.

The severity of the different epidemics differed much in different localities. "No circumstances of soil, climate, occupation or sanitary condition afforded any satisfactory explanation of these differing incidences."

The death-rate from influenza was greatest in the rural districts. In London and 90 large towns it varied from 0.52 to 0.58 per 1,000 living, while in 192 rural districts the rate was 0.73 per 1,000. This is probably due to the fact that "the death-rate from influenza increases with advancing age; and while many of the rural areas have been more or less denuded of young people and adolescents, the old people have remained at home in the villages."

"Further experience goes to confirm the view that influenza is essentially propagated from person to person. Indeed, the evidence which is now forthcoming, tending to show that the disease has followed the lines of human intercourse, so far outweighs any that has been put forward in favor of its being due to 'atmospheric causes,' as to suggest that where these have been accepted as accounting for outbreaks, all the circumstances of the local prevalences in question have not been forthcoming." Dr. Parsons adds: "Similar conclusions have also been arrived at independently by numerous observers in this and in other countries, and the communicability of influenza may be said to be now very generally, though not quite universally, accepted." Several instances are cited in confirmation of this view, and too little weight is given to the other side of the problem.

Several interesting questions are considered in the report, such as — (1) the existence of media in which the contagion of influenza can live or multiply outside the body. (2) What are the circumstances which promote its spread at one time, and not at another? (3) As to immunity and the *individual*. (4) Does an epidemic in any way protect a *community* against recurrence? (5) As to the effect of locality or occupation. Mr. Alfred Fletcher, the successor of Dr. Angus Smith as inspector of alkali works presents some statistics which appear to show that workmen employed in such works are measurably exempt from influenza. (6) The relation of pneumonia to influenza. (7) Length of the period of infectiousness. (8) Clinical features of epidemics.

With reference to prophylaxis, the report discusses the practicability of isolation and of school closure and concludes that while instances show the value of isolation, it would be quite difficult to enforce it in practice. As to notification, "in the opinion of many able and thoughtful medical officers of health, the advantages to be gained from compulsory notification of influenza would not, in most districts, be commensurate with its cost."

The volume also contains Dr. Klein's report upon the clinical and pathological aspects of the disease. The materials for the investigation were mainly supplied from the Kensington Infirmary and from St. Bartholomew's Hospital. The following conclusions are presented:

"The researches now recorded have afforded certain affirmative results as to the microphytic elements of influenza; they are such as may be presumed to be constant in influenza; and they are in full agreement with the results obtained by Pfeiffer and Kitasato. Our investigations have shown a bacillus having peculiar morphological and cultural characters, always abundantly present in the bronchial secretion of patients suffering with influenza, diminishing in numbers as the disease abates, and disappearing when it comes to an end. The same species of bacillus is furthermore found occasionally in the blood of acute influenza; not very often indeed, but often enough to invalidate a suggestion that its appearance there is a matter of accident."

In referring to the German and other authorities upon the same subject, Dr. Klein does not consider the evidence as quite complete, and further says "what we now most specially want, for the demonstration of this bacillus as the materies of influenza, is evidence that this particular microbe does not occur in any other disease than influenza; and Pfeiffer and Kitasato would go so far as to assert this as a fact. Our own researches have not led us to doubt it; and we have only to give the obvious caution that not sufficient time has yet elapsed since Pfeiffer's discovery to establish their assertion, and perhaps we are as yet hardly safe in denying the presence of his bacillus elsewhere than in influenza."

The report is illustrated with photographs of human blood, bronchial sputum, influenza bacilli and cultures.

[1] Further Report and Papers on Epidemic Influenza (1889-92). By H. Franklin Parsons, M.D., and Dr. Klein. London: Eyre & Spottiswoode. 1893. A report of the Local Government Board.

FOOT-BALL.

MUD will soon give way to frost, and the foot-ball season for this year is drawing to a close. By the end of another week the three principal events of the season will have been decided, and the Sunday paper will have to seek other portraits for its gallery than those of frowsy youths in sweaters.

Of the growing popularity of the game among players and spectators there can be no question. The male child now emerges from swaddling clothes into quilted and padded knickerbockers, and lays aside his rattle for a pig skin. The greater the number of seats provided for those who desire to assist as onlookers at the

chief matches of the year, the greater seems to be the competition for them. The struggle for seats at the Harvard-Yale and Harvard-Pennsylvania games is almost as keen as will be the struggle for the score between the opposing elevens. Fashion unquestionably has much to do with this, and foot-ball is now the fashion. But behind the fashion of the thing, there is as unquestionably a genuine zeal for the sport itself, certainly among the players, and in a lesser measure among the spectators.

The game is not without its risks, and even its fatalities — as is unhappily illustrated elsewhere in this very issue of the JOURNAL. It may be made a medium for brutality, for betting, and for trickery, and has been such at times. The same, however, may be said of many, if not of all manly sports. That is an argument for regulating, not for abandoning them. Foot-ball as now played is not a good game for most boys below, or for most men above, a certain age. The game requires much, and develops much besides mere brute force. There is something to be had from contesting sports in the open air which mere gymnasium exercises, however skilfully conducted, cannot give. The blood which is sent tingling through the body need not be bad blood, and the contestants can and should so bear themselves that respect and not hatred for opponents is engendered.

We have no prejudices against fencing because it comes to us from France, against golf because its home is in Scotland, nor against polo, hunting and foot-ball because they are adopted from England. A sport which has nothing more than fashion to recommend it will not hold its own. Though foot-ball as now played really seems to us a poor game for a large number of spectators, it is, we believe, not likely soon to lose its hold upon its votaries, and that because it has many intrinsic merits as a manly sport.

We ourselves prefer the golf stick or the tennis racket, but we are forced to admit that we are quite beyond a certain age, and we are also willing to admit that there was a time when wallowing in the mud, even as a substitute, would not have been thought inglorious.

MEDICAL NOTES.

BERI-BERI AT PHILADELPHIA. — The steamer *Lenark*, from Java, which arrived at Philadelphia November 3d, brought eight of her crew ill with well-marked beri-beri. Thirty-one other men have been held under quarantine observation.

VIRCHOW'S SUCCESSOR. — Professor Weinhold has been elected Rector of the University of Berlin to succeed Virchow, whose term ended at the beginning of the present semester. The new Rector at once appointed Virchow to be a member of the University Senate.

FATAL FOOT-BALL ACCIDENTS. — At a game of foot-ball between high-school boys in Adrian, O., last week, one of the players was killed by having his cervical spine dislocated while "downing" the ball. This is the fourth fatal injury at foot-ball this year, three other players having had their necks broken and one his skull fractured. A sixth, probably fatal case, occurred in Farmington, Conn., on the 20th inst., in a game between the Yale Senior-Class team and the Farmington Athletic Club. One of the players on the latter team had his neck broken, and is unconscious, and totally paralyzed below the seventh vertebra. In England the deaths from injuries received in the game during the season from September 1st to April 1st, are said to have averaged twenty-four in each of the last three years.

CHICAGO PASTEUR INSTITUTE. — Since the inauguration of the Chicago Pasteur Institute, July 2, 1890, 302 persons have been treated by preventive inoculation against hydrophobia; 104 were bitten by animals recognized and ascertained to be rabid by the experimental proof made in the laboratory, or by the death of other persons or animals bitten by the same animal; 126 were bitten by animals recognized to be rabid by the symptoms of the disease shown during life, and 72 by animals strongly suspected to be rabid; 282 persons were bitten by dogs, 7 by horses, 7 by cats, 3 by skunks, 2 by wolves, 1 by a mule. The persons treated came from the following States: 185 from Illinois, 32 from Iowa, 23 from Indiana, 21 from Kansas, 9 from Ohio, 5 from Missouri, 5 from Arizona, 4 from Minnesota, 4 from Michigan, 4 from Louisiana, 3 from Tennessee, 3 from Kentucky, 2 from Texas, 1 from Wisconsin, 1 from South Dakota. One death was reported among the patients treated, thus giving a mortality of only 0.33 per cent.

BOSTON AND NEW ENGLAND.

A RECEPTION TO DR. HOLMES. — The College Club of Boston gave a reception to Dr. Oliver Wendell Holmes last Saturday afternoon. Mrs. L. S. Davis, the president of the club, assisted by Mrs. Alice Freeman Palmer, received the guests. About five hundred persons were presented to Dr. Holmes, who received them seated in a laurel-decorated chair in the parlor, under a bower of palms. During the evening Dr. Holmes recited "The Last Leaf," "Dorothy Q," and "The Chambered Nautilus."

FREE VACCINATION IN BOSTON. — In view of the recent outbreak of small-pox in Boston, the Board of Health has issued the following notice: "Vaccination without charge will be given at the Shurtleff Schoolhouse on Dorchester Street and the Mather Schoolhouse, Broadway, both in South Boston, from 4 to 5 P. M. and 7 to 8 P. M., every day this week. The office of the Chardon Street building will be open daily, as usual, for free vaccination, from 10 to 12 A. M."

GAS SUFFOCATION IN BOSTON. — Much complaint is made in Boston concerning the variable pressure of the gas-supply, which makes it unsafe to leave a light turned low. Many narrow escapes from suffocation

have been reported, and it is suggested that some of the many recent "suicides" by gas poisoning may have been entirely unplanned and accidental.

SMALL-POX IN BOSTON. — Three new cases of small-pox have occurred in Boston the last week, one being in South Boston and two in Roxbury. All of the patients at the hospital are doing well. The *Catalonia* which brought the disease here, returned to port on the 19th from Liverpool. On the voyage back to England one case of small-pox occurred, and the boat was fumigated at Liverpool. No cases occurred on the last voyage, but the vessel will again be fumigated here. On arrival, all of the passengers who did not show new vaccination marks were re-vaccinated.

A GIFT TO A LOWELL HOSPITAL. — In addition to previous liberal donations, Mr. Thomas Downing has given St. John's Hospital, Lowell, $1,000.

SCARLET FEVER AT AMESBURY. — The epidemic of scarlet fever at Amesbury, Mass., still continues, there being at present over forty cases in the town. Since last week, eight more schools have been ordered closed, making ten in all. The death-rate has not been excessive as yet.

NEW YORK.

ACADEMY OF MEDICINE AND THE NEW YORK INFANT ASYLUM. — At a regular meeting of the New York Academy of Medicine, held November 16th, Dr. John A. Wyeth introduced a series of resolutions pledging the approval by the Academy of the protest and resignation of the Medical Board of the New York Infant Asylum in consequence of the dismissal from its service of Dr. Robert Milbank. In support of them, he stated that within a few months' past, Dr. Milbank, a reputable physician and a Fellow of the Academy, who was one of the visiting staff of the Infant Asylum, had, after years of faithful service, been dismissed by the President of the Board of Managers, and that another physician had been appointed to fill his place. No charges of any character were preferred against him, and there was no question as to his qualifications for the performance of his duties. The Medical Board, while held responsible for the welfare of the inmates of the institution, were not consulted, either as to the dismissal of Dr. Millbank or the appointment of his successor. They protested against this action of the managers, and, being informed that if they did not like it they could resign, did resign. After an animated discussion, the resolutions were finally tabled. At the same meeting resolutions were adopted which called attention to the inefficiency of the present coroner system, and requested the Constitutional Convention, which is to meet at Albany, in April next, to consider the propriety of abolishing the office, and suggesting the enactment of laws providing for a system of medical examiners such as now exists in the State of Massachusetts.

THE LEAHE AND WATTS ORPHAN ASYLUM. — At the semi-centennial celebration of the Leahe and Watts Orphan Asylum, held at the new building of the institution near Yonkers, on November 16th, the Rev. Dr. Morgan Dix, the President of the Board of Managers, announced that a separate hospital building would be erected in order to properly guard against the spread of any contagious disease among the children.

CARE OF DEPENDENT CHILDREN.—November 15th and 16th a conference on the care of dependent and delinquent children, was held under the auspices of the State Charities Aid Association. During the course of the proceedings Mrs. M. C. Dumphy, superintendent of the city institutions for children on Randall's Island, advocated the employment of efficient hired attendants to take the place of the "work-house women" now assigned there, as she believed the association of the children with such women demoralizing. Dr. Stanton Cort, of the University Settlement, advised the abolition of rear tenements, which now give rise to so many unsanitary conditions, and the converting of the centre of city blocks in poor localities into parks and play-grounds.

SMALL-POX. — During the past week cases of small-pox have occurred in the Tombs prison and in Roosevelt Hospital, and a large number of persons were exposed to the contagion in each instance before the patients were removed. The disease is less prevalent, however, than it was a few weeks since, and the Board of Health is carrying on the work of vaccination on a more general scale than ever before.

MORTALITY. — During the week ending November 11th, the death-rate of the city was the smallest ever recorded. The exceptionally fine weather for this season of the year, as well as the unusually clean condition of the streets, is no doubt in some manner accountable for this happy result. The number of deaths reported for the week was 641, which represents an annual death-rate of only 17.46 per thousand of the estimated population, against 18.40 the week previous. The official sanitary report states that if it had not been for the prevalence of diphtheria, the rate would have gone below 17 per thousand, fixed by Dr. Farr as the rate for very healthy country districts. During the week there were 53 deaths from diphtheria.

Miscellany.

"A CHESTERFIELD GORILLA."

THERE recently died in a Berlin menagerie a gorilla of great elegance of manner. Its habits of life were regular and most precise, and the account given of its daily occupations reads much like the court bulletins of the Grand Monarch. It was accustomed, it is said, to wake at eight o'clock in the morning and take a glass of milk. Certainly this conformity of time, rather than daylight, marked an advance from the animal to the conventionality of man. It is not said whether the milk was brought to the gorilla or called for. The account goes on:

"At nine o'clock it made its toilet with as much care as a civilized man, and ate its breakfast a few

minutes afterward. This consisted of two Vienna loaves, Hamburg smoked meat, cheese and white beer.

"Another bit of refinement in preferring a light beer for breakfast, especially after a careful toilet.

"At one o'clock in the afternoon it had a cup of chicken soup with carrot, rice and potatoes and an egg. Its evening meal consisted of fruits, bread and butter, and a cup of tea."

It will be noticed that the chief attentions of this gorilla were gastronomic; but the evident care bestowed upon the selection of its viands was truly civilized and human. It is not stated what was the cause of death. It is to be hoped it was not the inadvertent use of a dark beer or a hasty toilet.

TOXICITY OF THE BLOOD OF THE COMMON TOAD.

MM. PHISALIX and Bertand[1] have found in the blood of toads certain active principles having the same poisonous effect upon frogs and mammals as the venom secreted by the cutaneous and parotid glands of toads. When injected into frogs they produce paralysis, beginning in the hind limbs, slowing and arrest of the heart, and contraction of the pupil. They are produced by an internal secretion of the cutaneous glands, and to this internal secretion must be attributed the immunity of toads, as in venomous reptiles, for their own poison.

THERAPEUTIC NOTES.

NAPHTHALENE AS A TÆNIFUGE. — The following dose of naphthalene has been found by several observers in the *Revue Médicale de Louvain* an excellent tænifuge and free from any toxic effect.

℞ Napthalene	30 to 50 centigrammes.	
Ol. ricini	15 grammes.	
Ol. bergamoti	10 drops.	M.
Sig. To be taken at one dose, fasting.		

A single dose is usually sufficient for children. For adults the naphthalene is best given in a cachet containing one gramme and followed at once by 30 grammes of oil. Crequy recommends a combination of calomel and malefern as being with him the most successful.

℞ Calomel	80 centigrammes.
Extract of malefern	8 grammes.

To be divided into sixteen capsules, one to be taken every ten minutes.

TREATMENT OF TONSILLITIS. — Fabre at the recent Congress at Besancon reported forty cases of tonsillitis successfully treated by inhalation of hot air charged with creasote and carbolic acid. The cough was at once relieved, and a resolution obtained in two days. In ten cases of threatened suppuration the painful deglutition was relieved after an inhalation for half an hour. The softened areas disappeared on the second inhalation. The mixture used was beech-wood creasote, five grammes, and crystallized carbolic acid, fifty centigrammes. In the only case of diphtheritic tonsillitis thus treated, the tonsils which were covered with thick false membrane became after three inhalations perfectly clean. The mucous membrane soon recovered its normal appearance, and the glandular swelling rapidly diminished. In this case the amount of carbolic acid was increased to one gramme.

[1] Archiv. de Physiol. Norm. et Patholog., July.

Correspondence.

MASSACHUSETTS MEDICAL SOCIETY.

440 WEST CHESTER PARK, BOSTON,
November 13, 1893.

MR. EDITOR: — If any of your readers will assist me by furnishing any of the names, the initials of which are given in the following list, I shall esteem it a favor. The gentlemen named were residents of Boston when they joined the Society.

Yours very truly,
EDWARD JACOB FORSTER, M.D.,
Treasurer Mass. Med. Society.

Admitted	
1842 Abbot, Joseph S.	
1826 Bartlett, Erastus H., d. 1846	
1846 Bartlett, Joseph E.	
1849 Butler, Alexander S.	
1818 Cole, Larkin Baker.	
1839 Collyer, Robert H.	
1855 Durgin, Elijah S., d. 1861	
1838 Eaton, Albert C. or E.	
1871 Follett, S. F.	
1810 Foster, Josiah D., d. 1812	
1851 Gleason, E. W., d. 1853	
1852 Hallinan, James B., d. 1858	
1842 Hammatt, George A.	
1803 Howard, John C., d. 1812	
1856 Kob, Charles F.	
Admitted	
1844 Lane, Alfred A., d. 1847	
1832 Lane, George W., d. 1833	
1849 Malcolm, Alexander B.	
1842 Mignault, Louis M. F., d. 1869	
1847 Molloy, Patrick E.	
1852 Park, A. O.	
1850 Philbrick, Samuel R., d. 1859	
1846 Pickett, George B.	
1858 Pike, Horace G.	
1871 Pratt, Charles B.	
1843 Rosenstein, John C.	
1840 Spofford, Charles W.	
1847 Whipple, Shilometh S., d. 1859	
1845 Wilbur, S. F.	

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 11, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrheal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	641	219	17.12	15.04	3.04	1.76	9.60
Chicago	1,438,000	—	—	—	—	—	—	—
Philadelphia	1,115,562	412	145	16.56	13.92	2.88	.96	9.60
Brooklyn	978,394	—	—	—	—	—	—	—
St. Louis	569,000	—	—	—	—	—	—	—
Boston	487,397	184	71	11.88	14.58	2.16	1.64	4.32
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	92	30	14.17	11.99	—	7.63	4.36
Cincinnati	305,000	—	—	—	—	—	—	—
Cleveland	290,000	104	34	15.36	12.48	2.88	2.88	7.78
Pittsburg	263,769	—	—	—	—	—	—	—
Milwaukee	250,000	78	34	23.04	14.08	3.84	6 40	10.24
Nashville	87,754	25	10	8.00	24.00	4.00	—	4.00
Charleston	65,165	49	17	8.16	2.04	4.08	2.04	—
Portland	40,000	11	1	—	—	—	—	—
Worcester	96,217	37	15	21.60	2.70	—	2.70	10.80
Fall River	87,411	31	12	6.46	19.38	6.46	—	—
Lowell	87,191	34	14	20.58	17.64	8.82	2.94	5.88
Cambridge	77,100	26	10	19.25	19.25	7.70	—	3.85
Lynn	62,656	23	8	21.75	8.70	—	—	17.40
Springfield	48,684	10	3	10.00	10.00	—	—	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	22	6	9.10	4.55	4.55	4.55	—
Holyoke	41,278	—	—	—	—	—	—	—
Salem	32,233	13	3	—	—	—	—	—
Brockton	32,140	3	1	—	—	—	—	—
Haverhill	31,396	8	2	12.50	12.50	—	—	—
Chelsea	30,264	9	1	—	22.22	—	—	—
Malden	29,394	12	10	6.25	6.25	—	—	—
Newton	27,556	—	—	—	25.00	—	—	—
Fitchburg	27,146	5	1	20.00	—	—	—	20.00
Taunton	26,972	15	4	6.66	13.33	6.66	—	—
Gloucester	26,688	—	—	—	—	—	—	—
Waltham	22,058	5	2	20.00	—	—	—	20.00
Quincy	19,642	6	1	33.33	—	16.66	16.66	—
Pittsfield	18,802	2	1	—	—	—	—	—
Everett	16,585	6	0	—	16.66	—	—	—
Northampton	16,331	7	0	—	28.56	—	—	—
Newburyport	14,073	2	1	50.00	—	—	—	50.00
Amesbury	10,920	2	2	—	—	—	—	—

Deaths reported 1,970: under five years of age 666; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fever) 299, consumption 254, acute lung diseases 221, diphtheria and croup 147, diarrhœal diseases 56, typhoid fever 38, scarlet fever 23, cerebro-spinal meningitis 13, whooping-cough 10, measles 7, malarial fever 2, small-pox 2.

From scarlet fever Philadelphia 8, Boston 5, New York 3,

Milwaukee, Cambridge, Lynn, Somerville and Malden 1 each. From cerebro-spinal meningitis New York 5, Washington, Cleveland and Worcester 2 each, Boston and Somerville 1 each. From whooping-cough Philadelphia 3, New York 2, Boston, Worcester, Lowell, Cambridge and Haverhill 1 each. From measles New York 4, Philadelphia, Milwaukee and Springfield 1 each. From small-pox New York 2.

In the thirty-three greater towns of England and Wales with an estimated population of 10,327,846, for the week ending November 4th, the death-rate was 20.2. Deaths reported 4,005: acute diseases of the respiratory organs (London) 369, diphtheria 108, scarlet fever 81, diarrhœa 74, fever 70, whooping-cough 61, measles 57, small-pox (Birmingham 4, London, Bristol and Bradford 1 each) 7.

The death-rates ranged from 9.6 in Croydon to 26.7 in Hull; Birmingham 22.7, Bradford 20.5, Bristol 14.6, Gateshead 15.5, Leeds 17.3, Leicester 15.0, Liverpool 26.0, London 20.5, Manchester 20.0, Newcastle-on-Tyne 20.9, Nottingham 15.1, Portsmouth 14.6, Sheffield 20.1, Swansea 16.1, West Ham 19.7.

METEOROLOGICAL RECORD,

For the week ending November 11, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S.. 5	30.25	40	45	35	82	77	80	N.	N.E.	13	3	C.	C.	.22
M.. 6	30.28	46	56	37	80	53	66	S.W.	W.	13	8	C.	C.	
T.. 7	30.49	42	48	36	59	71	65	N.	S.E.	10	6	C.	C.	
W. 8	30.30	44	49	36	70	86	78	W.	S.E.	2	3	F.	O	
T.. 9	30.06	48	54	41	70	67	68	N.W.	N.E.	5	15	O.	C.	
F..10	30.56	34	39	28	63	72	68	N.	N.E.	18	2	C.	C.	
S..11	30.41	40	51	39	75	73	74	W.	N.E.	12	7	C.	C.	
☞	30.31		49	35			71							.22

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 11, 1893, TO NOVEMBER 17, 1893.

The leave of absence granted CAPTAIN HENRY P. BIRMINGHAM, assistant surgeon, U. S. A., is further extended one month.

Leave of absence for one month, is granted FIRST-LIEUT. CHARLES E. B. FLAGG, assistant surgeon, with permission to apply for an extension of twenty days.

LIEUT.-COL. CHARLES R. GREENLEAF, deputy surgeon-general, is relieved from duty in the office of the Surgeon of the Army, and will repair to San Francisco, Cal., and assume charge of the medical supply depot in that city, relieving LIEUT.-COL. JOSEPH P. WRIGHT, deputy surgeon-general, who, upon being thus relieved, will repair to St. Louis, Mo., and assume charge of the medical supply depot in that city.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Wednesday, December 6th, at 8 o'clock, P. M., by Dr. M. H. Richardson. Subject, "Abdominal Emergencies." Physicians are cordially invited.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday, November 27, 1893, at 8 o'clock, P. M.

Dr. C. J. Blake: "Fixation of the Stapes," illustrated by lantern slides. Discussion opened by Dr. J. O. Green.

Dr. Paul Thorndike: "Notes on Phosphaturia." Discussion opened by Prof. E. S. Wood, M.D.

Members are kindly requested to show interesting cases and pathological specimens.

JOHN T. BOWEN, M.D., *Secretary.*

RESIGNATION.

C. S. GORDON, M.D., of Portland, Me., has resigned the Professorship of Gynecology in the College of Physicians and Surgeons of Boston.

BOSTON MEDICO-LEGAL SOCIETY.

RESOLUTIONS ON THE DEATH OF DR. CARTER.

At the meeting of the Boston Medico-Psychological Society held October 19th, a committee was appointed to prepare resolutions upon the death of Dr. Cyrus F. Carter. This committee presented the following memorial:

"The Boston Medico-Psychological Society feel that in the death of Cyrus Faulkner Carter they have lost a valued and beloved member. Dying at the early age of thirty-two years, when it seemed that his life-work had just begun, by his generous nature, by his faithfulness and by his skill, he had endeared himself to all with whom he came in contact.

"Death has taken from the Society and from the medical profession a man of great attainments, of rare promise, respected, loved."

RECENT DEATHS.

HOWLAND HOLMES, M.D., M.M.S.S., died at Lexington, November 16th, aged seventy-eight years. He graduated from Harvard College in the class of 1843 and from the Harvard Medical School in 1848. He had been for many years prominent in all town affairs at Lexington.

CHARLES WARRINGTON EARLE, M.D., President of the Board of Directors of the College of Physicians and Surgeons and of the Women's Medical College of Chicago, died in Chicago, November 19th, aged forty-eight years.

JOHN FRISSELL, M.D., died at Wheeling, West Virginia, November 16th, aged eighty-four years. He was one of the oldest alumni of Williams College, having graduated in the class of 1831. After receiving his M.D. in 1834 he moved to Wheeling, where he has since been one of the best known surgeons.

BOOKS AND PAMPHLETS RECEIVED.

Connecticut State Medical Directory, Containing a carefully prepared list of Physicians, Dentists and Druggists, together with Colleges, Hospitals, Medical Associations and Societies throughout the State. Danbury, Conn.: The Danbury Medical Printing Co. 1893.

A Text-Book of Physiology. By M. Foster, M.A., M.D., LL.D., F.R.S., Professor of Physiology in the University of Cambridge and Fellow of Trinity College, Cambridge. With illustrations. Sixth edition. Part I comprising Book I. Blood, the Tissues of Movement, the Vascular Mechanism. New York and London: Macmillan & Co. 1893.

Exercise for Pulmonary Invalids. By Charles Denison, A.M., M.D., Professor of Diseases of the Chest and of Climatology, University of Denver; Ex-President of the American Climatological Association. Read before the Congress of Medico-Climatology of World's Fair Congress Auxiliary, June 1, 1893. Denver, Colo.: Chain & Hardy. 1893.

Annual of the Universal Medical Sciences: A Yearly Report of the Progress of the General Sanitary Sciences throughout the World. Edited by Charles E. Sajous, M.D., and seventy associate editors. Illustrated with chromolithographs, engravings and maps. Five volumes. Philadelphia, New York, Chicago and London: The F. A. Davis Co. 1893.

Healthy Hospitals; Observations on some Points Connected with Hospital Construction. By Sir Douglas Galton, Late Royal Engineer, K.C.B., Hon. D.C.L., LL.D., F.R.S., etc., Assistant Inspector-General of Fortifications; Director of Public Works and Buildings, etc. With illustrations. Oxford, at the Clarendon Press. London: Henry Froude & H. K. Lewis. 1893.

A System of Genito-Urinary Diseases, Syphilology and Dermatology. By various authors. Edited by Prince A. Morrow, A.M., M.D., Clinical Professor of Genito-Urinary Diseases; Formerly Lecturer on Dermatology in the University of the City of New York: Surgeon to Charity Hospital. With illustrations. In three volumes. Volume II. Syphilology. New York: D. Appleton & Co. 1893.

The Students' Dictionary of Medicine and the Allied Sciences, Comprising the Pronunciation, Derivation and full Explanation of Medical Terms, together with much Collateral Descriptive Matter, Numerous Tables, etc. By Alexander Duane, M.D., Assistant Surgeon to the New York Ophthalmic and Aural Institute; Reviser of Medical Terms for Webster's International Dictionary. Philadelphia: Lea Brothers & Co. 1893.

Rules to be Followed in the Effort to Prevent Mural Abscesses, Abdominal Sinuses and Ventral Hernia after Laparotomy. The Importance of Understanding the Function of the Levator and Ani Muscle in the Treatment of Injuries of the Floor of the Vagina. The Diagnosis and Treatment of Intestinal Obstructions, and the Management of Greatly Distended Intestines during Laparotomy. Secondary Hæmorrhage after Ovariotomy: Can we Prevent It? The Prevention and Management of Pelvic Inflammation in Puerperal Women. Counter-Drainage after Cœliotomy. By Horace Tracy Hanks, M.D., New York. Reprints. 1891-92-93.

Lecture.

LECTURES ON SURGERY.[1]

BY DAVID W. CHEEVER, M.D.,
Professor of Surgery in Harvard University.

XX

ANEURISMS (CONTINUED).

AN aneurism is defined as a sac containing blood which communicates with an artery. We spoke of the mode of its formation in the last lecture. I said that coagulation of blood in the sac with successive layers of fibrin and clot was nature's method of trying to cure it. I should add, also, that nature throws out another safeguard on the outer side of the sac as the aneurism progresses. The sac of the true aneurism, owing to the ulceration of the inner coat of the artery and the giving way of the middle coat, finally consists wholly of the outer coat of the vessel. Its sac pulsates and stretches and throbs with every beat of the heart; and of course impinges on all the neighboring tissues, and gradually absorbs them. In doing this it cannot fail to light up an inflammation in the connective tissue round about; and, accordingly, we have a thickening of the sac on the outside produced by an inflammatory process in the connective tissue around it. Thus, then, we have nature trying to establish a series of buffers inside to check the flow of blood inside the sac; and on the outside, by the inflammatory products of the connective tissue, resisting the pulsation within. In spite of all this, in a large aneurism, where it has got well under way, the disease goes on and the force, like all hydraulic pressure, is irresistible and absorbs everything before it. Curiously enough it is said that cartilage is a tissue which resists the longest. Bones yield before cartilages; soft tissue, of course, very rapidly.

The pressure on muscles and on veins and on nerves gives rise to great interference with the circulation of the part; and in concealed aneurisms in the deeper parts of the body as in the trunk, usually gives rise to great pain which is ascribed to rheumatism, to neuralgia, to various causes, for a long time before the true trouble becomes apparent. The bones are absorbed; the bodies of the vertebræ are eaten off; the sternum is eaten through. An aneurism presents itself at some unexpected point where previously there was nothing but bone and hard tissue, and then it goes on pulsating and thinning.

Its usual duration is said to be from two to four years. It generally terminates fatally, and usually by rupture. Occasionally it undergoes an inflammatory process and suppurates; and, rarely, in that way cures itself. In other words, by the time the sac bursts, so great a mass of protective lymph has been thrown up around it that the discharge is mostly of pus; shrinking takes place, and occasionally the aneurism is cured. More often, however, it bursts, with a fatal result.

The arch of the aorta seems the most subject to aneurism, and next to that the three or four larger vessels. The popliteal is a favorite place, next to that the femoral, then the carotid. The popliteal, apparently, is a favorite site for aneurism on account of the constant flexion and extension to which the vessel is subjected in the movement of the leg; and if a change begins, as it often does, by atheromatous deposits in the artery, there is the place where it is very likely to stretch and bend and be forced to give way, sooner than in other parts of the body. This is the true aneurism.

There are other varieties. In the first place, it is quite evident that we may at any time have a traumatic aneurism. This may be produced by a gun-shot wound by a ball. It is not necessary that the ball should pierce the artery to give rise to an aneurism, but run across, and wound and bruise its coats. A cut or stab will give rise to an aneurism. The blood is poured out into the cellular tissue. A species of connective-tissue sac is formed about this blood. It slowly forces its way into all the interspaces of the part, as the thigh, until finally the fascia lata itself may become the sac of the traumatic aneurism; the patient still surviving, on account of the slow daily and weekly loss of blood not affecting him so rapidly as a sudden gush from the wound; and in some of these cases in the false sac of a traumatic aneurism, several pints of coagula have been thrown out.

Then there is the dissecting aneurism, in which the dilatation and the leaking of the blood takes place between the coats of the vessel, and runs along its course until it finally makes a long oblong sac between the outer and middle coats of the artery, and dissects often for a good ways into the tissues.

Then there are other forms where an artery and vein happen to be wounded together, and arterial blood has been poured into the vein. This occurred frequently in former times when venesection from the vein at the bend of the elbow was so common. The vein overlying the artery on the inner side of the arm, frequently in puncturing the vein the artery was punctured. A varicose aneurism was formed between the two, and the current ran together. In these cases a curious pulsation is heard; a whirring sound; the limb is swollen and enfeebled. There is more or less pain. The collateral vessels all become very much enlarged; but this process may go on for a good many years without leading to a fatal result.

What are the signs of aneurism?

Obviously a pulsating tumor; but this pulsation must be of a peculiar kind, and, as a rule, accompanied by a peculiar sound, to make it sure that it is an aneurism. The pulsation must be expansile; not merely beating up, but dilating. The sound is like the placental souffle, and synchronous with the pulsation of the heart. All tumors, however, which pulsate in this curious manner, and have a bruit, are not aneurisms, inasmuch as some varieties of soft erectile tumors and some of the softer forms of cancer pulsate and give a bruit in this same way; so that we must judge somewhat by the shape and size of the tumor; the history of the case; its effect on the circulation of the parts below, etc., to decide whether it is an aneurism or not. Every lump that is elevated on the artery and appears to give the sign of pulsation also, may not be an aneurism; because small solid tumors like adenoids, in which the glands, especially of the femoral triangle, overlying an artery, are lifted in pulsation, are frequently mistaken for aneurism. That is also true in the neck, where an enlarged lymphatic, particularly if located opposite the bifurcation of the external and internal carotid, is frequently thrown up with a marked pulsation, and mistaken for carotid aneurism.

[1] These are unwritten lectures printed from the stenographers' reports. Verbal corrections are made in revision, but no rhetorical changes. They were delivered to the third and fourth classes as part of the regular course.

The other more reliable signs of aneurism are these: first, that compression of the main trunk of the vessel above the suspected point stops the pulsation in the aneurism, (that, of course, would go without saying); second, that compression of the vessel below the suspected point always increases the pulsation in the sac of the aneurism; and, third, that the natural pulse in the vessels below the aneurism is enfeebled and sometimes lost.

Extensive pulsation in the site of a great vessel; a noise heard like the placental souffle; the ability to check the pulsation and the noise by compressing the vessel above; increase in the noise and pulsation by compressing the vessel below; and an enfeebled pulsation in the vessels supplying blood to the parts further down on the limb, are classical signs of aneurism. It is quite easy to find these in the popliteal, not difficult in the femoral, but in any portion of the abdominal or thoracic aorta these signs must mainly be wanting. They are out of sight, out of reach, perhaps may not affect particularly the circulation in the two legs below. The pulsation of the abdominal aorta itself, in the feeble, anæmic, emaciated person, may frequently be mistaken for aneurism when no aneurism whatever exists. You will find in the very sick and enfeebled, whose abdomen is retracted with emaciation, that by putting the hand just above the umbilicus in the central line and pressing moderately, you get quite a forcible and steady pulsation synchronous with the beat of the heart; this is simply the overaction of anæmia. So that all the signs may fail in the case of an internal aneurism, except possibly you may hear the bruit, or judge of what is taking place by the long-continued pain which it produces.

How shall an aneurism be treated?

There are two modes. We might apply both measures to either form of aneurism in the leg or arm, but we could not apply operative measures to aneurism inside the thorax and abdomen. One class of measures are called constitutional, and the other operative. The constitutional measures are adapted only for the treatment of those aneurisms which are beyond the surgeon's reach, about the heart, in the thorax, in the abdomen.

The local or operative measures, of course, are adapted to all other classes of aneurisms, in the limbs and neck, where the vessels can be got at.

Valsalva, long ago, and Tufnel proposed certain methods for treating aneurism constitutionally, which are not without their effect; and indeed, as this is the only resource in these aneurisms inside the body, we are forced to adopt this treatment or none at all; and we may safely say, I think, to the patient, that if the Tufnel or Valsalva treatment does not cure, at any rate it relieves pain a good deal; prolongs life; renders existence comfortable; and postpones the day of the final rupture of the aneurism.

These constitutional measures consist of two things — first, trying to reduce the vigor and celerity of the current of blood in the sac by keeping the patient perfectly still in the horizontal position and allowing him to make no effort whatever; and also to give internally medicines which will check and slow the pulsations of the heart to a certain degree, such as digitalis, veratrum viride and strophanthus. The use of these medicines to slow the current, and absolute rest on the part of the patient, tend to quiet down the cardiac circulation; to diminish the number of throbs that have got to go through the aneurismal sac day and night; to reduce the distensile force of the blood; to favor the formation of clots, and check the growth of the aneurism. There is no doubt that a great deal may be effected in this way.

Anything that diminishes the throbbing and the force of the pulsation, diminishes in the same degree, pain, which is, as a rule, due to pressure on sensitive neighboring parts. A good deal is effected by selecting the diet of the patient, and giving food only of that kind which will be sufficient to sustain life without stimulating the arterial circulation. A reduced diet, not starvation, but reduced; the avoidance of all stimulants of every kind; perfect rest in the horizontal position; remedies to reduce the action of the heart; and, in addition to this, Tufnel thinks he got a good deal of benefit from large doses of iodide of potash. The bromides have been used also with some effect. In this way an aneurism of the arch of the aorta, or the thoracic or abdominal aorta, or aneurism of the innominate, which are beyond reach, may be prolonged and quieted; and the patients may be kept going several years. If they are content to lead such a life, reclining in bed, pulsation will be brought to its lowest ebb, and occasionally cures have been effected. Occasionally spontaneous cures have occurred in aneurism without any treatment whatever.

Now as to the treatment of those aneurisms which are in the limbs. It is what is termed operative; but it is not of necessity the using of the knife. The number of modes of attacking these aneurisms that have been proposed is very great, and I will briefly run them over.

Incision, ligation, compression, acupressure, flexion, manipulation, galvano-puncture and the introduction of solid substances into the sac.

Antyllus, far back in Grecian times, attacked aneurisms boldly by opening the sac and seizing the vessels where they entered and emerged. This was done without ether and without antiseptics, and with almost none of the assistance that we have now. He saved a good many cases; and was a strong advocate of this method of treatment. The incision was made boldly through the skin. An assistant seized the artery above. The artery was tied at its entrance into the sac, and then the point of exit sought and the artery tied where it left the sac. The sac shrivelled up; slight suppuration took place. If the ligatures ulcerated out without subsequent hæmorrhage, the patient recovered. Unfortunately it was found, that the same condition of the artery which made the sac often lead to incomplete healing of the ligature. Secondary hæmorrhage took place in a good many cases.

The next mode of treatment was introduced by John Hunter, and consisted in tying the artery to control the aneurism at a distance from the sac, where it was healthy. He would tie, for a femoral or popliteal aneurism, high up in Scarpa's triangle, high up in the groin; and he would tie, for instance, for an aneurism of the radial, high towards the elbow; tying at a distance from the sac, between the sac and the heart. This was the usual method employed when the ligature was used to cure an aneurism — to tie at a distance from the sac, between the sac and the heart; because you are reasonably sure of having an elastic and healthy artery to hold the ligature; which is not the case within an inch, or half an inch of the sac itself. The immediate effect of tying, for instance, the femoral in

Scarpa's triangle, for popliteal aneurism, is to arrest at once the whole circulation in the sac of the aneurism. Speedily great changes took place in the foot and limb below. Curiously enough, owing to some disturbance of the vaso-motor nerves probably, the temperature of the leg and foot rises after the ligature is applied. This is, however, of short duration, and after an hour or two the temperature of the leg and foot begins to fall, and steadily falls below the normal level, owing to the cutting off of the arterial supply of blood. You have a shrunken, pallid, cold foot and limb; severe pain as a rule. The circulation wholly ceases, for the time, on account of the cutting off of the main supply, which has gone through the femoral and the sac.

What possible protection is there on the part of nature to prevent this stoppage from being permanent, and the limb immediately mortifying and sloughing in consequence of the sudden and complete arrest of circulation? We now have take place a marvellous process called collateral circulation. We know the infinite anastomoses in arteries and veins. We know that pulsation extends through numerous branches which interlace, and wind about in every possible direction, in between the muscles and fascia, to supply the different parts of the limb. Some of these branches dilate, and thus is established the collateral circulation. If the femoral is tied at the apex of Scarpa's triangle, it is tied below where the great posterior trunk is given off. This circulates blood through the muscles of the upper part of the thigh. Gradually the smaller vessels dilate; and arteries, hardly appreciable before, become of considerable size. The limb is eventually supplied by a score of little vessels dilated, where it was before supplied by one principal stem. A similar change takes place when the carotid is tied. It takes place also when obstruction of the vessels takes place about the aorta, from the junction of the perforating artery from the sternum, and the superficial epigastric artery, going up in the sheath of the rectus, and forming a large loop of connection; this dilates so that those vessels become of large size, in obstructions in the abdomen.

Obviously success in curing an aneurism by ligature must consist in several things — first, that the current shall be completely cut off in the main artery, which supplies the sac; and sufficiently far away from the sac to prevent the chance of the ligature giving way prematurely on account of the atheromatous and rotten condition of the vessel near the sac itself.

Second, that it must be so tied that sufficient smaller vessels may be left to take up and establish the collateral circulation in time to save the limb below from dying from want of arterial blood. Those two problems have got to be carried out. Now a certain percentage of ligations of large vessels after Hunter's method are successful, and a very considerable percentage fail; not only to cure the aneurism, but to supply the limb. Of what use to cure the aneurism if subsequently you have to amputate the limb? You could have done that before. In a very considerable percentage after the Hunterian method the leg and foot mortify; and this is the great drawback against its performance.

Other methods have been introduced which seek to obstruct the current in the artery, which I will only mention here, inasmuch as they are of the same class, and might as well be mentioned at the same time.

On account of the danger of suppuration and secondary hæmorrhage, Simpson introduced what is called acupressure, to compress the vessel by steel needles. The needle was passed in, and passed under the vessel, and left in the sartorius muscle, for instance; and placed in such a way that it was held between the vessel and the superficial muscles. The artery was merely crossed and compressed by the needle for a limited space of time. Twenty-four to forty-eight hours was ample to secure permanent obstruction of the femoral, in such cases. The needle was slipped out; the muscles fell back into place; but the artery was plugged.

This was a great advance over the old method. This was the first stage towards the better securing of vessels; but we, of course, have got by all that, since we have the antiseptic and organic ligature, made up of structures which either fail to excite suppuration, or are absorbed after the wound closes. Cat-gut ligatures are absorbed. The silk which is prepared antiseptically probably remains; although it is possible it may be finally absorbed. Its fibre is much stronger than is that of the cat-gut, and resists much better. By one of these means we can now tie these large vessels and not expect to have them suppurate, or have any secondary hæmorrhage. That might encourage us to return to the method of Antyllus; and, in fact, it is now occasionally used with success.

With all due respect to these great men, it is evident that all these methods are unphilosophical, in that they do not follow the dictates of nature. Nature tells us to try to slow the current; to try to promote coagulation of blood; and to try to give time for the parts to harden; but not to cut off the blood instantly, for that she never does. Hence the method by digital compression has proved to be the most successful, inasmuch as it imitates more closely the processes of nature herself. Formerly compression was applied rudely by means of a bag of shot, or an apparatus rigged with two or three screws and pads, so that you could push down one on one part, and another on another part of the artery; and these measures were often successful. Occasionally they failed; and they failed, I think, because the mistake was made of applying them too forcibly. It is not necessary to stop the current in curing an aneurism. It is only necessary to slow the current; take off the pressure and then apply it again; and frequently the aneurism can finally be permanently obstructed and stopped by the formation of successive layers of clots. The danger in the earlier times, in the use of compression, was that it was used so forcibly. The hand was never employed; but mechanical means wholly. These mechanical means were applied and kept on as long as it was thought the integrity of the parts would stand it; and the process continued for several days. The result was frequently œdema, sloughing, abscess, cellulitis, such a condition of the limb that afterwards no further operation could be attempted on the vessel or the part, provided this first method of treatment failed. Hence, if you are going to ligature an artery for an aneurism, do not touch it by any other means first; but if you are going to try compression, these measures may be used; but you must not expect a favorable opportunity to ligature the vessel afterwards, because the parts will almost always be so changed by œdema, that the ligature will fail, and secondary hæmorrhage occur, and antiseptic methods prove an entire failure. Either ligature or compress.

If we compress, it is best done by the hands of numerous assistants, and done with the fingers; holding them so as to almost entirely obstruct the current in the artery for a few minutes at a time. The human hands will not keep up pressure on the artery long. They have to be relieved as often as once in ten to fifteen minutes. It is not desirable that absolute stopping of the current should occur for any length of time. It may be held still a little while, and allowed to filter, the effect being carefully watched in the diminished pulsation in the sac; in its thickening; and the temperature of the parts being watched to see if any inflammatory changes are taking place. It is the most philosophical and best way of treating aneurism when it can be done. Obviously it cannot be used as well for the carotid, as for the femoral or axillary. In pressing over the carotid we have to press down upon the pneumogastric nerve. We generally give rise soon to great pain and distress and symptoms of irritability of the whole sympathetic system; consequently consecutive and long-continued pressure on the carotid is not generally well borne. In such a place we have only one other resort, and that is the ligature.

We have by no means finished all these methods that have been tried; and I will not dwell long on them; but will allude to them, in order that we may understand what was done, and why.

There is the method by partial compression. In popliteal aneurism the leg was tied up in extreme flexion. It pains terribly. The patient cannot stand it long. It requires large doses of morphia. The leg has to be tied up and let down. Slow obstruction of the current in the popliteal vessel; plugging of the vessel and stopping of pulsation in the aneurism sometimes in four or five hours, very often in twelve hours. This method in the popliteal region, and at the bend of the elbow, is a very effectual method; and if it is not persisted in too harshly, it is frequently successful. You must be patient. It is a mode of treatment that has not infrequently been successful, and has occasionally been disastrous by being persisted in too long; by making the aneurism slough and leading to secondary hæmorrhage. You cannot appreciate the amount of pain that the patient undergoes when the leg has been tied up in the flexed position for a short time. The pain is intolerable. The leg is occasionally relaxed a little and then brought up again. Large quantities of opium are given. You do not have this pain with gentle manipulation of the fingers on the groin, not to such an extent; though in almost all the immediately compressing methods the patient has to be supported through the treatment by the internal use of opium, to quiet the nervous system, to a moderate degree.

Manipulation. — That would seem to be a very rash method; and yet it was formerly applied; consisting in taking the sac of a large aneurism and kneading it with the fingers so as to force the blood to coagulate. The result was breaking up of clots in the part, travelling of emboli, and usually disastrous results.

Galvano-puncture is pretty much like the injection of astringents into the sac. By that is meant the throwing of the galvanic current through the sac and causing the blood to coagulate by the process of electrolysis. The blood coagulates around the two poles of the galvanic current carried through. In small aneurisms, if the parts around can be secured from the travelling of clots, no doubt it would succeed. In larger aneurisms it is dangerous.

Ergotin has been given subcutaneously to contract the walls of the vessels. Bear in mind that here you are dealing with a two-edged sword. You are not only contracting the walls of the vessel itself, but diminishing the circulation in the limb beneath; and spontaneous gangrene has followed the use of ergot, without any aneurism at all. Ergotism from eating spurred rye, has been followed by epidemics of gangrene in various parts of Europe. Ergotine will contract the coats of the vessels in the parts where you do not want them contracted, as much as in the parts about the sac, where you do.

The Introduction of Substances into the Sac. — That is a very curious phenomenon. It is applicable principally to the arteries of the thorax and the abdomen and the innominate, for instance, parts usually treated by what are called constitutional measures. This consists in taking a very fine roll of silver or nickel-plated wire, puncturing the sac, and passing in, perhaps, yards of fine wire. The result is coagulation of fibrin around these little fibres; immense increase in coagulability; occlusion of the aneurism; in a few cases cure; in many cases suppuration and death. It may be tried as a last, and I would say almost desperate resort in the case of innominate or thoracic aneurism, where the sac can be got at; and where the methods of rest, sedatives, starvation and drugs have failed; where the sac has increased, and the patient is going to die, it is quite justifiable to try this method, provided the patient understands it, and wishes to have it done. A few cases have succeeded, but not a great many.

We are reduced then I think, after all, in the operative treatment of aneurisms to only two methods. One is to tie the vessel; the other is to compress it. It may be done in a great variety of ways, and is frequently curative. The danger of too sudden ligation, or of sudden compression, is that there is not time enough to establish the collateral circulation, and that the parts below will die, and mortification take place. This may not extend up very far. Sometimes the patient loses a toe, or several toes; sometimes the process stops at the instep; and sometimes involves the whole leg; and where such a result does occur we might just as well have amputated the leg before and saved all this trouble, as amputate it afterwards for spontaneous gangrene. A distinguished physician in London, a few years ago, preferred amputation of the thigh to the tiresome and unsuccessful treatment of a large popliteal aneurism; and he promptly recovered from the operation. There is an open question, in case of a large aneurism, where there is a good deal of doubt whether you can cure it without gangrene, in regard to the proper method of procedure. Undoubtedly the majority would say they preferred any chance of ligature or compression, rather than the chance of losing a limb.

Venous aneurisms, or as they are sometimes called, varicose aneurisms, which consist in a communication between the artery and vein, in consequence of a wound which has failed to kill the patient by bleeding; which has let the arterial blood run out into the vein; are frequently of long duration; not always fatal; do not always increase fast; and do not always call for surgical interference. Unfortunately they often happen in inaccessible parts of the body; for instance, stabs in the groin and wounding of the iliac, so that the iliac arterial current communicates with the iliac vein. Such a case gives rise to an enormous buzzing tumor inside

the abdomen, which is heard with a whirring, rasping sound, pretty much like the saw, or a planing machine. This gives rise to pain and œdema of the leg; retraction in order to favor it; and to incapacity; but not necessarily, or rapidly, to destruction of life. If these cases can be reached early, they may be cured, frequently, by compression; and that is the most judicious form of treatment to apply. If they are small and very accessible, they may be laid open, and the artery and vein thoroughly tied.

Original Articles.

THE TREATMENT OF HALLUX VALGUS.[1]

BY JOEL E. GOLDTHWAIT, M.D., OF BOSTON.

It seems hardly necessary for me to offer an apology for presenting a paper upon this subject, when it is considered, that comparatively few persons go through life without suffering to a greater or less degree from this affection, or from conditions which are directly the result of it; and when, furthermore, it is considered that while the deformity itself, as well as the resulting conditions are truly surgical affections, with definite modes of treatment for their control, still the large majority of the cases seek relief from their troubles at the hands of chiropodists, men of very little, if any, medical or surgical training.

While the title of the paper deals only with the treatment of Hallux Valgus, nevertheless, as the etiology has a decided bearing upon the treatment, a certain amount of time must be given to its consideration.

While the disease is essentially a disease of adult life, nevertheless, clinically, a congenital form is recognized, as with Hallux Varus, although it is of much less frequent occurrence. The deformity in these cases may be due to muscular contraction, or to an abnormal development of the bones, so that one articular facet is longer than the other.

Flat-foot is undoubtedly responsible for a certain number of cases; the reasons being purely mechanical ones. Instead of the step being completed with the weight of the body squarely upon the ball of the great toe, it is thrown upon the inner side, thus stretching the internal lateral ligaments, and pressing the toe forcibly against the others. Aston Key [2] describes the same condition by attributing it to excessive weight received upon a weak tarsus and metatarsus from overstanding, the great toe being gradually forced outwards by the oblique bearing of the foot, on the inner plantar surface, when the arch of the foot has given way.

In the large majority of cases, however, the condition is directly attributable to the wearing of improper shoes; either too short, too narrow, too pointed, or some form that does not give as much room for lateral spreading of the toes as is possible at the metatarsophalangeal articulations. Hueter [3] mentions the shoes and the shoemaker as the sole cause of the deformity; as do also Bradford and Lovett.[4] With either of these the resulting deformity is the same; the toes are crowded together and the great toe pressed against or drawn over or under the others. The deformity is necessarily increased in walking or standing, as there is distinct widening across the ball of the foot. To quote from Bradford and Lovett: [5] "The boot is not stretched at its extreme end, and it inevitably becomes in a degree conical in shape on this account, being broader across the ball of the foot than at the tip end. In the act of walking the foot necessarily slips inside of the boot to a certain extent, and if the shoe slips backwards and the foot forwards, a certain amount of pressure will come upon the inner side of the end of the great toe."

In the treatment of this condition it is rarely the deformity itself which causes the patient to seek advice, but, rather, some of the conditions which are the direct result. As the toes are crowded together, the folds of skin at the sides of the toe are pressed against the edges of the nail. These become irritated and sensitive, then hypertrophy as the result of the constant irritation, and later on, ulceration; and the painful "ingrowing nail" results. In the treatment of this the correction of the Hallux Valgus is necessary.

As the deformity develops and the toe is drawn more and more to the side, the head of the metatarsal bone is more and more uncovered, and there is constantly increasing pressure against this point, which normally should be protected. As a result, the skin thickens and becomes calloused; and the exposed end of the bone from the constant irritation becomes enlarged. This, at first, is chiefly due to periosteal thickening; but, later on, bony deposits replace and increase the enlargement, particularly at the age when the deposits common in chronic rheumatoid arthritis are seen.

While these changes are taking place upon the exposed side of the bone, on the inner side the articular surfaces of the phalanx and the metatarsal bone are crowded together. This produces atrophy of the articular cartilages, and, if continued, the bone becomes exposed and true caries may result.

On the exposed side of the foot, as the thickening at the head of the metatarsal goes on and the skin over it becomes harder, a bursa forms between the two, which may or may not communicate with the joint. Under the continued irritation of walking this bursa enlarges, and later on becomes inflamed, — the so-called "Bunion."

Preventative treatment is, of course, the best for this condition, and consists in keeping the feet in the natural position from infancy; the arch of the foot should be maintained, especially in persons who are obliged to stand a great deal, and above all, proper shoes should be worn. After the deformity has occurred, the first part of the treatment consists in the removal of the cause; nothing like a tight shoe should be thought of, a wide and easy one being worn, and in connection with this stockings of good length should be worn. Key suggests having shoes made with a separate compartment for the great toe.

For the correction of the deformity various methods are in use. One of the simplest consists in wearing a piece of felt or roll of cotton between the first and second toes. This presses the great toe into place; but it has the disadvantage of leaving a considerable space between the two toes, so that when the pad is removed it is easy for the deformity to recur.

A method suggested by Sayre [6] consists in using a

[1] Read before the Boston Society for Medical Improvement, October 9, 1893.
[2] Guy's Hospital Reports, 1836.
[3] Gelenk-Krankheiten, p. 342.
[4] Orthopedic Surgery, p. 753.
[5] Orthopedic Surgery, p. 754.
[6] Ibid., p. 141.

linen or buckskin cot made to fit the toe, to which is attached a few inches of elastic webbing, and to this, again, is attached a piece of adhesive plaster to go around the heel. This is retained in place by two other strips of plaster which encircle the foot. This makes a comfortable appliance for use, especially in the acute cases.

Various appliances have been suggested, which would exert more force for correction than the Sayre device, such as hard-rubber, gutta-percha, or pasteboard splints, to which the toe is bound, so as to pull it back into place. In this class is the Bigg's apparatus which consists of a piece of steel with an opening cut so as to avoid pressure on the bunion, which is fastened to the inside of the foot and the toe pulled up to it. The difficulty with all of these has been to adjust them in such a way that they could be worn without great discomfort.

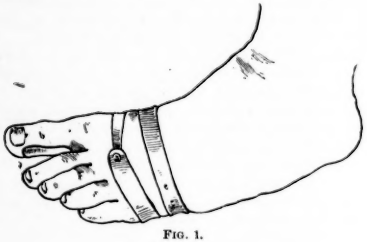


FIG. 1.



FIG. 2.



FIG. 3.

In order to get something that could be tolerated in walking, and at the same time be efficient in correcting the deformity, I have been experimenting during the summer, and after personal use, offer the two forms of apparatus that are shown in Figures 1, 2 and 3. Both can be worn inside an ordinary shoe, and at the same time exert pressure enough to hold the toe in the correct position. This pressure can be increased from time to time, if it seems necessary, by simply rebending the splint. The appliance is so fitted that no weight comes upon it in walking, the ball of the toe and ball of the foot both being free. The band which extends up on to the dorsum of the foot should be carried back far enough so that the painful joint is avoided, and should then be curved forward nearly to the base of the toes, so that flexion of the foot is not restricted. The long arm which follows the side of the foot in the splint (Figs. 1 and 2) makes it possible to exert more force for correcting the deformity, and also serves to more perfectly immobilize the splint than is possible with the appliance Fig. 3. Both splints are made of light spring steel, and should be carefully fitted before being tempered. Leather straps encircling the foot hold the appliances in position.

At times there is so much bony change that splints are not sufficient and some bone operation becomes necessary. If there is comparatively little inflammation about the joint and the bone is not very much changed in shape, a wedge-shaped piece may be removed from the head of the metatarsal bone as near the joint as possible and the toe drawn into place and secured by splints and a fixed bandage until the wound has healed. The bursa should be removed at the same time.

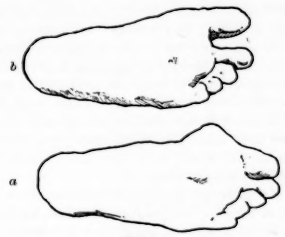


FIG. 4.

I wish here to show the casts of the foot of a patient upon whom I operated, in this way, about two months ago at the Carney Hospital. The patient was a woman about thirty-five years of age, with the marked deformity (Fig. 4, *a*) of the great toe which had existed for many years. A wedge-shaped piece of bone was removed from the head of the metatarsal, and the position corrected, as is shown by (Fig. 4, *b*), which was taken a few days ago.

At times, the change which has taken place in the head of the metatarsal bone is so extensive, and the bone is in such an unhealthy condition that the wound does not heal after the osteotomy, and a troublesome sinus remains. In other cases the thickening is so great that it is readily apparent, that even though an osteotomy were performed, the prominence at the joint would remain and cause trouble. For these cases the operation described by Hueter,[1] which consists of complete excision of the head of the metatarsal bone, is to be performed. The base of the phalanx, with its muscular attachments, is not disturbed. After the removal of the piece of bone the toe is drawn into place and the wound loosely closed, or is allowed to granulate. The bursa should be removed at the time of the operation, as with osteotomy. The results after this operation have been very satisfactory, leaving a straight toe and a very useful foot.

Tenotomy is suggested as a form of treatment, but the cases must be very rare that can be corrected wholly by this method.

Painful inflammation of the bursa may result from the constant irritation, and this may go on to suppura-

[1] Gelenk-Krankheiten, p. 345.

tion, and from this a more or less extensive cellulitis may develop. With this there is apt to be marked sensitiveness of the joint, rendering motion very painful, and for this condition rest and poultices or cold compresses are necessary, with possibly incision later on. The joint should be protected by bunion plasters or rings of saddler's felt, and a large soft shoe (or one made after the pattern of the Chinese shoe) should be worn.

Whatever be the operation or whatever the treatment, the importance of wearing proper shoes should not be lost sight of. The sole should be wide, so that the foot may have abundant room to spread out in walking or standing, and there should be plenty of room for the toes to be extended in the line with the metatarsal bones.

APPENDICITIS.[1]

BY A. WORCESTER, A.M., M.D.

(Concluded from No. 21, page 509.)

LET us now consider the treatment, and the reasons for the continued disgraceful diversity of opinions regarding the question.

Many writers upon the subject have apparently never seen a case of appendicitis. Having recognized its sequelæ at either ante-mortem or post-mortem examination of the abdomen, they imagine that they have recognized the disease itself. No other evidence of this general ignorance need be mentioned than the custom in medical journals as well as in the lay press of reporting deaths from appendicitis. Now nobody ever did die of appendicitis nor ever will. For the appendix being a perfectly useless organ, even its annihilation cannot injure the body except indirectly. But, just as the most harmless fellow citizen, who never would be missed, after his death, if his corpse be not decently removed, may endanger the life of the community, so our innocent little appendix after its death is apt to become an offensive source of trouble in our midst. And to treat with salts a patient in whose abdomen lies a putrefying appendix (as was lately recommended by a distinguished surgeon who maintained that once dead the appendix had done all the harm that it could do) is as reasonable treatment as it would be to depend upon flushing with sea-water the leaking sewers of a house where a cholera corpse was left lying in state.

There is, however, nowadays, excepting perhaps in the State of Maine, no theoretical opposition to the prompt removal of a gangrenous appendix. The question is as to the propriety of removing the inflamed appendix before the gangrenous stage is reached, or rather before the existence of gangrene shall have been confirmed by the inception of peritonitis or of a localized abscess. There could not be two sides to this question, were it not for the unfortunate fact that some still think themselves able to discriminate in cases of appendicitis which ones will eventuate in gangrene; or think themselves at least able to determine just when in any given case the inflammation assumes a gangrenous character. To this conceit should be ascribed the continued terrible mortality from the sequelæ of appendicitis. For, even admitting that a few experts have this extraordinary ability, which I deny, there is even so no safety in the ordinary practitioner's fooling himself with either his own or his consultant's guesswork. The physician who undertakes to treat his cases medically until gangrene occurs, and then to shift all responsibility upon the surgeon, will often find that he calls in the surgeon either a day too soon, to his own mortification, or, if a day too late, to his patient's.

If those who believe that they themselves have acquired the skill to distinguish at the onset of the disease the mild from the fulminant variety would only remember by what experience such supposed skill has been acquired, it does not seem possible that they would advise the inexperienced to follow in their footsteps. Yet this is one effect of their teaching, and the only other logical deduction is the necessity resting upon all more modest practitioners of putting their patients to the expense of sending at once for the assistance of these would-be specialists.

Feeble attempts have been made, it is true, to inform the profession how to differentiate the sure-to-do-well from the sure-to-do-badly cases. But in these attempts no two authorities agree, and, indeed, no authority of this year agrees with his own last year's deliverances. Apparently, the present position of these would-be diagnosticians is that one must be guided not by intelligible rules, but by impressions, which may be acquired only by long experience in watching cases go well, or from bad to worse, as fate may decide. Such experience apparently leads to the specialty of knowing nothing about appendicitis, however great proficiency may thus be acquired in dealing with the after-effects of the disease.

It is, however, not only that no one has as yet been able to formulate any serviceable method for making this very desirable diagnosis of the varieties of appendicitis without abdominal section, but it is also to be borne in mind that in the very nature of the problem no such method need be expected. For there are many conditions frequently attending even the apparently mildest forms of appendix inflammation, all of which are unrecognizable from the outside, yet any one of which being present makes it certain that in that particular case either a perforation or a gangrenous sloughing off of the organ will occur. Thus who can reasonably hope for ability ever to tell with what kind of micrococci an inflamed appendicitis is loaded; or how thin its walls have become, and at what hour the perforation will occur; or in what position the appendix lies, and the direction in which its foul contents will then be shot?

If we are only to stand by with salts and sympathy and close observation in these cases, all of these awkward questions must be satisfactorily answered, or there will be more funerals; and, until such questions can be satisfactorily determined, it is the plain, unavoidable duty of the medical attendant in every case of appendicitis, and as soon as the diagnosis is made, to put his patient under surgical treatment. An hour's unnecessary delay in so doing is inexcusable, if not criminal, negligence.

This, I am well aware, is not yet generally acceptable doctrine to the profession.

It is easier to understand the position of the physician than it is that of the average surgeon as regards this duty of immediate surgical treatment. The physician sees more than half of the cases, which perhaps, may be of appendicitis, do well under medical treatment; and where death or other grave disaster ensues

[1] Read by invitation before the Essex South District Medical Society, September 19, 1893.

the physician generally is able to transfer a large part of the responsibility to the shoulders of some surgeon. So long as surgeons dally with these cases, waiting for evidence of inflammation of something besides the appendix, it need not be expected that physicians will be in a hurry to transfer their appendicitis patients, and we shall continue to hear the sickening story of cases where at first all the doctors present were sure that it was only a mild catarrhal attack, but where suddenly the disease became fulminant, and where finally, at the last hour, the rigid abdomen was found to be full of stinking pus.

Those who oppose the rational radical treatment of appendicitis may be divided into four classes. Some do not know how to make the diagnosis. Some think they can diagnosticate even the varieties of the disease; others believe such knowledge possible; and finally, some have such an exaggerated fear of abdominal surgery that they allow their patients to take, instead of the chances under operation, the chances of not suffering any ill effects from the disease.

Attention has been given already to several of these objections. And now as regards the hope of future ability to tell beforehand which cases will surely do well without surgical intervention. Even if such knowledge be obtainable, will it come from the present custom of watching some cases recover only to recur, or will it come from the too late operations, or even from evacuating abscesses that might have been prevented? Will not such knowledge come, supposing that it is within the bounds of hope, rather by the prompt than by the delayed use of the knife? And can it be doubted that more lives would thereby be saved?

It remains for us now to consider the objections founded upon the imaginary dangers and disadvantages of even a needless explorative laparotomy. The real danger and disadvantage is trifling in comparison with that of delay in applying prompt surgical treatment. There is the fortnight's confinement to bed and the remote chance of subsequent hernia. But supposing the abdominal section to have been proven needless, there is then no danger whatever from subsequent hernia. The different layers of the abdominal walls can be fastened by buried sutures, and even if hernia should result, its radical cure is afterwards a simple matter.[2]

But only very seldom will an abdominal section, made under the diagnosis of beginning appendicitis, prove useful only in eliminating that disease by exclusion. Generally, the inflamed appendix can then be easily removed, and the disease eliminated by the excision; and where there is doubt as to its condition, or where there is difficulty in extricating it, then the early incision will be far more likely to prove to be a valuable sluice for a subsequent foul discharge than to be a source of danger or even of inconvenience to the patient.

I have several times seen fæcal concretions, and sometimes even the gangrenous appendix itself, discharged through incisions which at the time of operating seemed to be almost profitless. This result may be especially hoped for when there is a history of previous severe attacks.

Those who object to the immediate operation on account of its supposed dangers and disadvantages surely can never have seen employed the treatment they ignorantly condemn. For no surgeon who has once amputated a gangrenous appendix before it has perforated, and before either a localized abscess or a general peritonitis has developed, can ever question the immeasurable advantages of so treating the disease.

From such treatment no deaths have ever resulted, so far as I am aware. Nor have I known of any hernia or other subsequent trouble to result. Patients so treated certainly do not suffer recurrences of the disease.

After delayed surgical treatment, all kinds of troubles and disasters may be expected, and are, indeed, often unavoidable. And it is just here that the blunder of reporting cases of the sequelæ of appendicitis as cases of the disease itself, works such mischief; for timid practitioners hesitate to allow the early use of the knife where the disease is in its original mild stages, thinking thus to avoid the terrible revelations belonging only to delayed surgery. It would be as reasonable for such men to object to timely surgery because of the frightful revelations of the after-effects of appendicitis discovered so often only at the autopsy.

One last objection to the treatment herein advocated remains for consideration. Its necessity and even its propriety is still questioned, and by surgeons and physicians of large experience and great prestige.

Believing, as I firmly do believe, in the necessity of treating the disease surgically as soon as ever the diagnosis is made, and that every death resulting from appendicitis where the patient was not given the benefit of immediate surgical relief, is due to malpractice, I can but hold as responsible for the continued death-roll both those who advocate other methods of treatment and those who even tacitly approve the propriety of delay in such cases; for until the leaders of the profession either endorse the rule of immediate surgical treatment in every case, or furnish some other intelligible rule, it need not be expected that the present death-rate will be diminished.

Meanwhile, general practitioners make a great mistake in weakly depending upon the leaders of the profession in the simple emergency of an attack of appendicitis. There is too much of this shifting of responsibility business, nowadays. In the cities it may pay; it certainly does not pay in more sparsely-settled regions where the loss of patients cannot be well afforded, and where the grave-stones stare at us so uncomfortably, as we ride by on moonlight nights.

And then appendicitis is only one of several emergencies requiring prompt abdominal section. In some, as for instance in strangulated hernia, the doctor who waits long before operating, is not generally considered a first-class practitioner. And yet the operation of amputating a gangrenous appendix is surely neither more imperative nor more difficult.

In the surgical treatment of the later stages of the disease, and of the frightful conditions following it, there is no limit to the skill and equipment needed. Even so, failure will often occur. But in the early operation ordinary surgeons will succeed.

Perfect asepsis is, of course, requisite. So it is in the simplest surgery, and only fools disregard it. There is then no danger in cutting down through the abdominal wall directly over the point of greatest tenderness and of greatest resistance, as discovered by previous palpation. The incision should be a clean knife-cut throughout. Before incising the peritoneum,

[2] The truth of this last statement has since been verified by the personal experience of the writer.

it should be picked up with the forceps and at first nicked through by the knife, to avoid wounding any underlying gut. For those who can recognize the large intestine when they see it (and those who cannot do so can readily learn by a little careful study at an autopsy) there is not much difficulty in finding the appendix. The longitudinal bands on the colon and cæcum run straight down to the base of the appendix.

In cases where the surgery is delayed, it may be impracticable for an inexperienced surgeon, or even for an adept, to remove the appendix. But in cases of immediate operation the appendix can easily be brought up out of the belly wound and cut off by a V-shaped incision, which will allow the inversion of its edges and the approximation by Lembert sutures of their peritoneal coats.

If there is any gangrene of the outside of the appendix, it is not safe to close the abdominal wound: some gauze must be loosely stuffed into the cavity where the organ lay, which can be removed on the second or third day. But if the appendix has no gangrenous surface, then, after careful wiping out the region involved, the abdominal walls can be safely closed by layers, with buried sutures.

Such, in brief outline, is the operation by which patients suffering with appendicitis may be surely saved not only from death but from the chances of recurrence and of long-suffering.

I now beg to offer the following conclusions:

(1) Appendicitis itself is not a serious disease, for it is the inflammation of a worthless part of the body. It is, however, apt to recur. And any attack if left to nature or to medical management may cause a fatal purulent peritonitis or a localized abscess.

(2) Appendicitis can be as readily recognized as can any other local internal inflammation. This diagnosis, however, is easiest in the earliest stage of the disease.

(3) No rules can be formulated for differentiating the varieties of appendicitis, and of thus foretelling which cases will recover and which will cause dangerous or even fatal consequences. For there is no known way, except by abdominal section, of ascertaining the rate of progress or the extent of the inflammation in any given case; nor of determining the virulence of the contents of the organ, or its anatomical situation.

(4) The only rational treatment of the disease is its immediate ending, by excising the organ, before its own death or damage causes like results to its owner. This, at the beginning of the attack, is a feasible and an absolutely safe operation.

(5) The mortality in properly treated cases of appendicitis is *nil*.

Clinical Department.

A FEW CASES OF MILD MENTAL DISTURBANCE.[1]

BY LUCIUS W. BAKER, M.D.,
Superintendent Riverview Sanitarium for Nervous Invalids, Baldwinville, Mass.

The family physician is usually first consulted in regard to nearly every case of insanity, and his advice is desired as to the best counsel to be followed. He may not always be familiar with the rarer forms of mental disease, but he should be able to recognize and deal with those cases most likely to be met with in the routine of daily life. The few cases herewith presented are reported, not for their rarity or for any special peculiarity, but as illustrative of those cases which are constantly coming under the observation of the general practitioner.

Case I. Mrs. A, age twenty-five, about three months after her first confinement began to show symptoms of acute mental disturbance. She was of a refined, gentle disposition, but became profane, incoherent with constantly varying delusions. She had refused to care for her baby, and several times attempted to destroy it; had jumped from a two-story window, and tried to leap from a carriage while passing over a bridge. When admitted, she was poorly nourished, sleepless, and rambling in her conversation, was abusive to her attendant, refused to undress at night, and it was with great difficulty that she could be bathed. She was constantly attempting suicide by choking herself with her hands, and unless her grasp was forcibly removed would persist until her face was livid. This condition continued unchanged for about a month, when she became more quiet and manifested some interest in her surroundings; she could then be induced to engage for a short time daily in some fancy work, and spent much time in the open air. Her mental condition improved quite rapidly, and she was discharged well in about five months from the time of admission.

She has since passed safely through another confinement, and still remains in good physical and mental health.

Case II. Mrs. B, a bright, well-educated lady of twenty-five, of a strongly marked neurotic temperament. For nearly two years before admission she had had the delusion that her eyebrows and eyelashes were diseased and falling out, and that in consequence she had become so repulsive in her appearance that she was unfit to mingle in society. She was greatly depressed, and remained in strict seclusion as far as possible, spending much of her time before the mirror lamenting her sad lot, and would only go out when closely veiled. She was continually applying various preparations in hopes of preventing the progress of the supposed disease; and when I first saw her had succeeded in exciting some inflammation of the skin. Was seen by Dr. J. C. White, of Boston, in consultation, who decided that the eyebrows were free from disease.

She remained under my observation for about four months, during which time she was kept much in the open air and the presence of the delusion was largely ignored. She was a fine musician, and was urged to play and sing as much as possible. Gradually her mental trouble disappeared; she regained her health and spirits; and so far as I have been able to learn, has continued well.

Case III. Mrs. C, age thirty-five, was of an intensely active disposition. Soon after leaving the seminary she had an attack of neurasthenia, from which she recovered, married and went as a missionary to China, where with her husband she labored hard for six years. She then gave out, returned to America, and in April, 1890, entered a nervine asylum, where she improved physically; but as she gained in strength her inactive life became very irksome, and she then began to be mentally disturbed. For about a week before coming under my care she had been sleeping

[1] Read before the New England Psychological Society, September 26, 1893.

poorly, had headaches, and imagined that her room was arranged so that constant watch was kept upon her movements and that what she said or did was conveyed at once by means of the steam-pipes to the superintendent's apartments. She also believed that she had died and been brought to life again. During her residence with me of three months, she had varying delusions, and once wrote a long astronomical jumble which she wished to have published in the New York *Tribune*. As she gained in flesh and strength, she began to sleep better, her delusions passed away, and she has since remained in perfect mental health.

CASE IV. Mrs. D, age fifty-five, three months after an attack of the grip began to sleep poorly and lost her appetite. She was, however, obliged to work quite hard during the following summer; but in September, 1891, suddenly lost her self-control, and for a time was quite hysterical. She was then restless, sleepless and quite depressed, but without positive delusions, and had lost all interest in her home, to which she was usually much attached.

Within a month after admission she had gained three pounds in flesh, and was sleeping better. She was obliged to return home and care for a sick husband, when the old symptoms returned, and she came back, remained for two months, improved, and went home again on trial with the same result. She returned again and stayed four months, when she was discharged quite well, but with the caution to avoid housework for a year. This she did for some time, and is now as well as usual.

CASE V. Miss E, age thirty, a school-teacher by profession, had been working very hard and been out of health for about a year, but for some years had been a poor sleeper and had taken various hypnotics and other drugs. She was admitted to the Adams Nervine Asylum a few weeks before coming to me. While there she began to believe that a gentleman with whom her family had had some financial disagreement had furnished false information about her, that her letters were opened, and that she was constantly watched. She refused to take her medicines, and conducted herself generally so badly that she was sent away from there and came under my care. She was then somewhat anæmic, quite thin (weighing but eighty-seven pounds), possessed of varying delusions, and nervously prostrated. Soon after admission she attempted to run away but was easily persuaded to return. With rest, full feeding and cod liver oil, her mental condition steadily improved, and within a few months she had gained thirteen pounds in flesh, but regained her physical strength quite slowly. She remained under my observation for about a year, and since her return home has continued to improve and will probably completely regain her health.

CASE VI. Mrs. F, age forty-five, about two months before admission began to sleep poorly, lost all interest in her household affairs, and believed that she was cursed of God, that she was dishonest, had done evil, that she must go about telling the wicked things she had done, and that then she would be arrested and imprisoned, which would only be what she deserved. She paid but little attention to any one, and would sit for hours twisting a string or handkerchief between her hands. Had been taking teaspoonful doses of paraldehyde at bed-time and repeated the dose in the middle of the night. This was soon discontinued, and she was given twenty grains of chloralamid nightly, which was gradually reduced and soon dropped altogether. She was placed upon a generous diet, with tonics, kept much in the open air, and steadily but slowly improved, and returned home in three months. When last heard from she was as well as ever.

CASE VII. Mrs. G, for three years past has had profuse hæmorrhages from a uterine fibroid. September 30, 1892, the uterus and appendages were removed at St. Margaret's, Boston, by Dr. J. W. Elliott. Convalescence from the operation was satisfactory, and she returned home in five weeks, but soon became depressed and wakeful, and complained of pains in the head and back of the neck, and was in bed most of the time. Slight delusions then began to appear; she had committed an unpardonable sin in leaving the hospital so soon, and had erroneous ideas as to her surroundings, examination, etc. Returning to St. Margaret's, January 9, 1893, she appeared perfectly rational, but complained of pain in the region of the uterus, and that her head felt badly. Her mental condition again became much disturbed. She imagined that policemen were coming to take her to a dungeon across the river, that she had done wrong in telling things which she ought not to have told, and that her husband must suffer in consequence.

In this condition she was sent to me February 14, 1893. She was then excited, markedly anæmic, thin and exhausted; did not sleep well; her head felt badly; and in addition to the old delusions, she believed that she was to be buried alive. Within a few weeks her mental condition showed marked improvement, but her physical health improved but slowly, and her convalescence was marked by frequent relapses and by various nervous disturbances.

She returned to her home August 4, 1893, in a normal mental state, but still weak. She has, however, continued to gain, and will probably fully recover her health.

CASE VIII. Mrs. H, in August, 1892, while at a summer resort, without any known cause, except possible exposure to heat, quite suddenly lost all interest in the affairs of life, and began to be much depressed mentally. She felt that she had lost her religious hope, that she could only bring sorrow and disaster to all with whom she came in contact; and she was in constant fear that she would become so bad that she would be sent to an asylum for the insane. In the presence of others she was bright and vivacious, but when alone would spend hours of hopeless misery. She had lost flesh rapidly, and slept badly. She was at once placed upon a generous diet, and fed every two hours. Her mental condition steadily improved. She gained fifteen pounds in three months, when she returned to make a trial of home life, and has since remained as well as ever.

I am, of course, aware that this is a very limited number of cases on which to base any conclusions; but in reviewing them I have been impressed with two things: first, the rapidity with which the mental symptoms disappeared after the commencement of systematic medical treatment; and, secondly, the value of what is known as the restorative plan of treatment in patients with mental disturbance. It should be remembered, however, that with but one exception these were all comparatively recent cases. This is in agreement with the universal opinion of alienists, that the earlier treatment can be commenced the better the prognosis.

These cases were all regarded as suffering from an

impaired nutrition of the brain, and were given bitter tonics to restore the appetite when needed, — syrup of hypophosphites, phosphorus, strychnine, the various preparations of malt, and cod liver oil when possible to induce them to take it. Few hypnotics were needed, but when indicated the plan was to change them frequently, gradually reducing the quantity as the general health improved. My chief reliance, however, has been moderate exercise, out-door life, and the systematic use of a most nutritious diet. In addition to three full meals daily, I order the administration at regular intervals (generally of two hours) of a variety of concentrated liquid nourishment, such as milk, eggnogs, malted-milk, beef-extract, etc. A careful record of the weight was kept; and with scarcely any exception there was an early gain in flesh and an accompanying improvement in the mental condition.

It is difficult, however, to carry out the full details of this plan of treatment at the patient's home, unless an experienced nurse can be had; and even then there are difficulties in the way, as the surroundings are seldom under our management, and the full co-operation of the friends is not always obtainable. For this reason it seems preferable, when possible, to secure for these patients a complete change of surroundings, where all the details of treatment can be carried out under the direct control of the physician in charge.

Medical Progress.

RECENT PROGRESS IN ANATOMY.

BY THOMAS DWIGHT, M.D.

MORPHOLOGY OF THE MUSCULUS STERNALIS.

Dr. F. G. Parsons[1] reviews very concisely the chief facts observed concerning this interesting anomaly and the chief theories of its significance which have been deduced from them. He then gives new and original reasons for the support of a certain view. His statement of observed facts is so excellent that we give it in his own words. The main ones are the following:

"(1) That it occurs in from three to five per cent. of human subjects, though much more commonly in anencephalous monsters.

"(2) That it occurs in nearly the same proportion in male and female subjects.

"(3) That it is not found as a definite muscle in any of the lower animals.

"(4) That it lies superficial to the pectoralis major.

"(5) That it is very frequently continuous with the sterno-mastoid above.

"(6) That below, it is usually attached to the aponeurosis of the external oblique, or at all events to the sheath of that muscle which is blended with the aponeurosis.

"(7) That it may be uni- or bi-lateral.

"(8) When it is unilateral, it may cross the middle line obliquely. When it is bilateral, the two muscles are frequently connected across the middle line, or they may cross the middle line obliquely, forming a X in front of the middle line.

"(9) That it is usually supplied by one of the anterior thoracic nerves, . . . or by the intercostal nerves.

"(10) That it very occasionally has tendinous intersections.

"(11) That when a well-developed platysma coexists with it, the platysma is always on a plane superficial to it.

"(12) That it frequently pushes the anterior cutaneous branches of the intercostal nerves inwards, so that they form loops around its inner margin."

To this Mr. Parsons might have added that sometimes its fibres mingle with those of the pectoralis major; and that when the sternalis is present the pectoral sometimes shows anomalies by defect.

He then enumerated the following as the chief theories:

"(1) That it is a prolongation upward of the rectus abdominis." We may add that this is quite antiquated.

"(2) That it is a muscle peculiar to man, corresponding to nothing in the lower animals.

"(3) That it is a continuation of the sterno-mastoid above and of the external oblique below.

"(4) That it is a continuation downwards of the sterno-mastoid.

"(5) That it is formed by fibres of the pectoralis major, which have become rotated at right angles to the generality of the fibres.

"(6) That it is a remnant of the panniculus carnosus."

The last view upheld by Sir William Turner and others, is condemned by most, particularly on the ground that the playtsma, which undoubtedly is the analogue of the panniculus, lies superficial to the sternalis. The frequent connection of the sternalis with the sterno-mastoid also stands in the way. Now Mr. Parsons has found that the panniculus of the agouti and of many other rodents divides at the axillary border of the pectoralis major and passes both above and beneath it. He continues: "In man the deep abdominal panniculus has probably become the fascial sheath over the external oblique, and it is quite possible that the deep part of the cervical panniculus which lies over the sterno-mastoid and deep to the platysma (superficial cervical panniculus), may have become incorporated with the sterno-mastoid. If this be granted, nothing is simpler than to regard the sternalis as the remnant of a connection between the deep cervical and the deep abdominal panniculus, seeing that it is attached so often to the sterno-mastoid above and to the external oblique or its sheath below. . . . This theory, moreover, accounts for the co-existence of the platysma with the sternalis, though on a more superficial plane."

Dr. Parsons adds that as he regards the pectoralis major as derived from the panniculus, it matters little whether we regard the sternalis as a part of one or the other. This is a very ingenious view, though resting on a basis that must be doubtful, till several of the points concerning the analogies of the fasciæ and muscles have been definitely settled.

ANTHROPOLOGICAL MEASUREMENTS.

Hasse and Dehner,[2] of Breslau, made observations on rather more than five thousand soldiers with interesting results. We are particularly concerned with the question of the symmetry of the two sides of the body. The legs were of equal length in 32 per cent. and unequal in 68 per cent. In 52 per cent. of the

[1] Journal of Anatomy and Physiology, vol. xxvii, July, 1893.

[2] Arch. für Anat. and Physiol., Anat. Abtheil., 1893.

whole, the left leg was the longer; the right in 16 per cent. The arms were equal only in 17+ per cent., and unequal in 83 per cent.[3] In 75 per cent. of the whole the right arm was the longer, the left in nine per cent. Only one man in one hundred was left-handed and only a single man of this class had the right arm the longer.

THE FORAMEN CÆCUM.[4]

Professor Holl points out that the statements in anatomies concerning this little hole are not all the same. The general impression concerning it is that it is sometimes merely a blind pit, in other cases a communication between the cranial and nasal cavities transmitting a vein. The last impression, according to Holl, is quite a mistake. In the adult it is a closed canal completely filled by a process of dura mater. In the macerated skull of a young person it is truly a canal, but it transmits no vein, for skulls which have not been macerated show that it is closed below by cartilage; the process of the dura mater which passes through it runs for a short distance between the cartilage and the nasal bones. In an embryo of a new-born child this band runs as a small thread to the tip of the nose. The bone which grows round the upper part of this is the nasal spine of the adult frontal bone. This spine is very important; it runs as a pin between the ethmoid, the nasal bones and the median prominence of the frontal. This has, moreover, a pathological interest. If the nasal spine does not develop, this place is closed only by membrane, so that an encephalocele may occur.

THE TRANSVERSE PALATINE FISSURE.[5]

This is the fissure formed by the junction of the horizontal plates of the palate bones with those of the superior maxillæ. It has received no great attention as its variations are of no practical consequence. Professor Stieda has classified the kinds of suture with his well-known accuracy. It is possible that the matter may have some ethnological value. Besides irregular forms which defy classification, he finds three chief dispositions of this fissure. The most usual is when it bends forward with a convexity which is completed at the median line by the opposite suture. It may instead run straight across, or finally it may bend backward. Stieda examined 1,382 skulls which were suited to the purpose, that is to say, in which the hard palate was not injured nor the suture obliterated. More than 1,000 of these were in two collections at Königsberg, but the remaining 300 were in the anthropological institute of Rome. About 200 of the last were skulls of Melanesians and the rest of Italians. Of the Melanesians about 48 per cent. had the anterior convexity and about 40 per cent. had a straight suture. This is very different from the results obtained with the German collections which showed the anterior convexity in from 65 to 68 per cent., and the straight line in from 14 to 19 per cent. The Italian skulls had the forward convexity in 72 per cent., the straight line in 40 per cent. In all races the posterior convexity was less common and irregular forms rarest of all.

THE LYMPHATICS OF THE ANUS.[6]

Dr. Quénu finds that the lymphatics of the anus empty into the glands near the termination of the long saphenous vein, most often somewhat above that level, but not rarely below it. The lymphatics of the anus are connected with those of the rectum along the columns of Morgagni. The course of the rectal lymphatics was studied only on children, which seems unfortunate. The author wished to ascertain whether they emptied only into the glands of the meso-rectum, or whether they had any connection with glands at the sides of the pelvis. He found that the lymphatics of these parts may be divided into three sets: those of the anus already mentioned inferior to the *levator ani*, those just above that muscle running to the lateral glands in the neighborhood of the internal iliac or of its chief branches, and finally, superior ones running to the glands along the superior hæmorroidal artery.

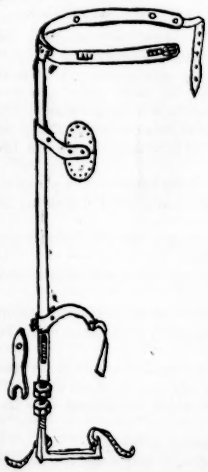
[3] In the original these figures are respectively 18 and 82, but this does not tally with what follows. We have corrected two evident mistakes but an error of one per cent. remained.
[4] Verhandlungen der Anatomischen Gesellschaft, 1893.
[5] Archiv. für Anthropol., Band xxii, 1893.
[6] Jour. de l'Anat. et de la Physiol., No. 4, 1893.

New Instruments.

A MODIFICATION OF THE LONG TRACTION SPLINT FOR HIP DISEASE, DESIGNED TO PROVIDE A LIGHT APPARATUS FOR LITTLE CHILDREN.

BY AUGUSTUS THORNDIKE, M.D., BOSTON.

IT not infrequently happens in orthopedic practice that a child three or four years old has to wear a Taylor hip-splint, a high-soled boot, and use crutches. It is almost invariably very slow work teaching such small children to walk thus encumbered. In the out-patient clinic the parent becomes first discouraged, then firmly convinced that it is impossible for such a small baby to walk on crutches; and in some instances the child is taken away from the clinic, and all treatment for a while is abandoned. If not, then after several months of encouragement and advice on the part of the orthopedist, the child gets to use crutches in spite of the parent's unbelief. In the hospital-ward instruction in the use of crutches is more easily and quickly given; but a little child always monopolizes a great deal of the nurse's time before it finally learns to walk. Taking both of these factors into consideration, it seemed to me that much time and trouble might be saved by making the splint out of a lighter material than the square bar of iron or steel generally employed, at least in this city. For this purpose, I have used for the upright of the splint a piece of steel tubing, which is both lighter than iron gas-pipe and stiffer than brass tubing.



Into the upper end of the tube is brazed a forged

piece, flattened out and shaped like the forging on top of the upright of a Taylor splint, which serves to connect it by three iron rivets to the waist-band of the splint. To insure strength, the lower part of the forging should nearly fill the tube for the upper two inches. The waist-band is not different from that of the ordinary traction hip-splint, and provides buckles for the completing belt and two perineal bands. Into the lower end of the steel tube, slides an iron rod; the lower part of this is forged into a light foot-piece, while upon the upper portion, for about six inches, a thread is turned of twelve turns to the inch, which carries two nuts. This rod should slide easily within the tube and at the same time almost fill it. By cutting a slot in the tube of one inch (the lower end of which should be at least two inches from the bottom of the tube) and inserting a small pin through the slot into the rod, the foot-piece is kept from twisting. Two straps riveted to the sides of the foot-piece serve to attach it to buckles on the leg extensions. The thigh-pad and calf-band are secured to the splint by simply wrapping the end of the arm once around the tube and tightening it with a screw. This holds the arm firmly enough for a small child, and enables one to alter the position of the bands with great ease. The upper part of the tube may be made to fit the natural curves of the body, but the lower six inches should be straight to allow the rod to slide within it.

In applying the splint the belt and perineal straps should first be tightened. The straps from the foot-piece should then be buckled firmly into the buckles on the leg extensions, and the webbing strap from the calf-band fastened. When the splint is put on, the pin should be at the top of the slot. By turning the upper of the two nuts with the wrench, any desired amount of extension may be applied; then holding the first nut steady with the wrench, the second nut is screwed firmly down on the first. This locks the two and prevents slipping. Two wrenches are provided for the purpose.

I have only had occasion to apply this form of splint twice during the past eighteen months; but the rapidity with which those little children have learned to get about has led me to think that I have been using too heavy apparatus. My limited experience has already disclosed two facts about this splint: first, that any rivet-hole or screw-hole in the steel tube renders it liable to break; and, secondly, that the "locked" nuts do not hold, but gradually loosen, if the little patient attempts to discard crutches and walk about on the foot-piece and high sole only.

Now that steel tubing is manufactured in this country, the cost of this appliance should not exceed that of other long traction-splints which provide for the adjustment of the amount of extension by the ratchet and windlass.

The Value of Bugs. — A curious case has recently come to trial in Brooklyn. A professional bug-exterminator sued a saloon-keeper for $25 for clearing his premises of insects. The plaintiff declares that he killed 8,000,000 bugs, which is at the rate of 3,200 bugs for a cent. The defendant asserts that the sum agreed upon was $12.50, that the plaintiff previously owed him $11.40, and that in the course of the work of extermination he (the plaintiff) drank up more than the balance.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. T. BOWEN, M.D., SECRETARY.

Regular meeting, Monday, October 9, 1893, the President, Dr. C. F. Folsom, in the chair.

Dr. George Haven read a paper on

SOME CASES OF LAPAROTOMY.

Dr. J. G. Blake: I have nothing to say about the appendicitis cases. I only desire to congratulate the reader upon getting the malignant disease of the uterus at such an early stage. Usually, when these cases come under treatment the disease has really got beyond control, that is, the glandular tissues and the uterine appendages are so diseased that removal of the uterus itself does not seem to accomplish a great deal. I should like to ask if the surrounding parts were quite free.

Dr. Haven: They were entirely free. The trouble was entirely in the body of the uterus.

Dr. Blake: I think this is the class of cases that justifies a grave operation like removal of the uterus. I have long thought after studying the statistics of radical methods and comparing as far as possible the results with those of milder methods, that the preponderance of evidence was in favor of not incurring the risk of grave operations, but of treating symptoms and keeping the disease in subjection by constant supervision. In considering the results of vaginal hysterectomy for malignant disease, Dr. Chadwick makes the statement that all his cases died within a year; and in the "System of Gynecology," edited by Mann, the statement is made that none of the patients who had undergone the operation of removal of the uterus were living at the end of five years. From my own knowledge, I feel safe in saying that where as much of the disease as can be reached is removed by curettes and caustics and the patient kept under supervision, life is rendered tolerable, free from pain, and prolonged on an average about two years. Unless the doctor is fortunate enough to get the disease in an early stage of development my own opinion is that the milder methods accomplish as much, taking into consideration the risks that follow the radical operation. Most of the cases of malignant disease of the uterus which have come to the City Hospital have come at a late stage, and looking back over a number of years I have never been quite satisfied that the conditions present when the patient came under observation were such as to justify resort to the graver operation.

Dr. J. B. Ayer: The second case I think was extremely interesting. The little girl of six years when I first saw her did not have pain exclusively localized in the region of the appendix. The pain was general. I felt suspicious of this trouble, but could not then make a positive diagnosis. On the second day in consultation with Drs. Haven and Putnam we concluded that there could be no doubt about the diagnosis. The case seemed a desperate one from the outset. The result I think was most brilliant.

I have recently seen another patient who died of appendicitis on the second day, in whom pain did not begin near the appendix, but in the epigastric region. In a few hours, however, it was over the appendix.

Dr. E. H. Bradford: I am glad Dr. Haven has

drawn attention to appendicitis in children, which perhaps is more common than is usually supposed. In a case where I had the opportunity of seeing the autopsy, the patient dying of tubercular meningitis, the appendix was found full of pus. There had been no symptoms directing attention to this and no other abdominal lesion. The appendix was very thin, and a rupture could easily have taken place.

In the case of a child of four, at the Children's Hospital, upon whom Dr. Monks operated, the appendix was found enlarged and thickened in a congenital hernia in the scrotum.

I recall another case in which the operation was done, I think, by Dr. Lovett, on a child of five.

I have seen three other cases in which the symptoms passed away without operation.

I dare say the disease is frequently overlooked in children, operation being thought of in only the severer forms, and in previous years no operation done.

DR. HAVEN stated in answer to questions, that it was the rule that if the appendix could not be freed without undue force, it was better to pack and leave it. The usual fistula closed within a few months. In the present instance, the fistula did not seem to affect the health of the child at all.

DR. HENRY JACKSON: The reports of the two cases in children are interesting on account of the absence in each of the classical symptoms of appendicitis in the adult. I have had one case in a young child which was rather similar. There was no acute abdominal pain in the region of the appendix. The whole abdomen was tense and somewhat tender. The child, who was five or six years old, did not have sufficient pain to cause screaming or even to prevent sleep during the whole night. Examination of the abdomen showed a large area of flatness in the right lower quadrant of the abdomen. Dr. Fitz saw the case in consultation, and we told the family the child could not live unless operated upon. They declined an operation. The child, however, recovered.

DR. HAVEN: I think the position of the appendix in the second case was interesting, it being just below the last rib and firmly bound down with the cæcum. What could be tied off was tied off.

I fully agree with what Dr. Blake said in reference to cases of cancer presenting themselves at a late stage of the disease. I see very few cases that are operable owing to extension of the disease into the pelvis. I think, however, a radical operation is to be preferred to milder methods in cases in which the ligaments or the cellular tissue are not involved. Even the cases relieved by palliative treatment have pain and disagreeable symptoms, and I do not think they do nearly as well as those operated upon radically, if it is possible to operate radically. The duration of life is not the sole consideration; we must also take into account the amount of suffering and discomfort from which they are saved after radical operations.

DR. JOEL E. GOLDTHWAIT presented a paper on

THE TREATMENT OF HALLUX VALGUS.[1]

DR. E. H. BRADFORD; I am very glad to say that the apparatus Dr. Goldthwait has devised is the neatest arrangement that can be made for the purpose, and I hope it will be generally used, for it makes the mechanical treatment possible which has hitherto been difficult. Dr. Goldthwait states very clearly the cause of the deformity. It is impossible to say how common the trouble is; and if one would seek the cause, it is in the shoe. I have taken a certain amount of pains to ascertain the origin of the pointed toe craze. I had supposed it was a modern thing. At the Shoe and Leather Exhibition in Chicago there were on exhibition a large number of shoes of all periods, and the pointed toe seems to date back to the Middle Ages, or indeed before that period. It seems to be the way in which the vagary of human vanity runs; it constitutes the chief cause of the deformity which gives occasion to so much annoyance.

DR. J. G. BLAKE; I happen to be a sufferer from this to some extent, together with loss of the arch, and I shall certainly very quickly avail myself of the benefit following this treatment. Now, however, I want to bear testimony to the immense benefit resulting from the steel plate for flat-foot. I mentioned to Dr. Nichols the pain and fatigue I experienced from walking, and he advised me to wear steel plates. He had my foot measured and plates fitted, and I have had more comfort since I began to wear those plates than I had for many years. The sense of support and strength is something I had not experienced before. I have no doubt I shall be still further benefited by consultation with Dr. Goldthwait.

DR. J. B. BRAINERD: In the last year I have had four or five cases of this distressing trouble which have been invariably associated with flat-foot. All of them have been greatly relieved, so far as distressing symptoms were concerned, by wearing the plates mentioned by Dr. Goldthwait. In only two has the deformity been removed, however. I shall be very glad to apply these steel springs, which I think will be just the thing needed to secure proper position for the great toe.

As to the pain being relieved from wearing the foot plates; that is perfectly reasonable, because with the two deformities and the patient walking on the inner side of the foot altogether, almost all the pressure comes upon the head of the first metatarsal bone, and if the arch is corrected, the patient walks with the foot straight instead of being abducted. That would relieve the pain, but would not, of course, correct the toe deformity.

DR. J. G. BLAKE made an oral communication, describing a case of

GASTRIC ULCER.

This case is peculiar and has reference to the painful and unexpected death of a young woman in this community. The patient was twenty-four years of age. I had known her since childhood. At no time had she complained of any gastric trouble more than, perhaps, slight tendency to nausea when she varied from certain lines of diet. About ten days ago she accidentally swallowed a piece of crust of toast. She said that great pain followed, extending from the beginning of the œsophagus down into the stomach, and she felt it all over the stomach, but more severely towards the back. She was put under treatment with restricted diet. After about a week she seemed to have recovered. Unexpectedly she was taken with hæmorrhage and vomited almost a pint of blood. I saw her soon after and administered remedies appropriate for that condition. After several hours there was a recurrence of hæmorrhage, smaller in amount, and later still another hæmorrhage. Dr. Fitz saw her in consultation. He gave rather a favorable prognosis.

[1] See page 533 of the Journal.

She was put upon rectal alimentation and absolute rest given to the stomach. It was impressed on the patient's father and husband, that there were two sources of danger attending gastric ulcer — one, recurring hæmorrhage, which might prove fatal from its amount, and the other, perforation; and while those conditions did not obtain very often, still cases had died suddenly, and they were warned not to be too sanguine. She died about ten hours after that. She made an attempt to vomit and did not vomit much blood, but died with all the signs of exhaustion. I suppose she had a large internal hæmorrhage. The result, wholly unexpected, was one of the things that ought to be borne in mind in connection with the disease. How much the scraping of the œsophagus and gastric mucous membrane by the sharp edge of this crust had to do with it, I do not know. It may not have had anything, but the pain and distressing symptoms dated from that. The case is valuable I think, inasmuch as it conveys a warning not to be too sanguine about the prognosis in cases of gastric ulcer; also of the fact that in many cases of so-called dyspepsia you may have the condition of advanced gastritis or ulceration existing, not suspected, and which at any time, from slight cause, may take on an alarming condition. In hospital practice we know that gastric ulcer is not uncommon. I have had my share of them. I remember one case that terminated fatally from peritonitis, and the existence of the disease was not suspected. On examination there was a perforation.

Dr. H. Jackson: In post-mortem examination it is not very unusual to find evidence of pre-existing ulcer of the stomach. But cases are not recognized clinically as often as they are demonstrated by the existence of the scars. In the course of a good many outpatient clinics, I have examined very carefully the cases which presented themselves with pain in the region of the stomach or with other symptoms suggestive of gastric ulcer, and I have found very few where I could feel sure that such a condition existed. I have examined those cases, especially since a consultation with Dr. Gannett in a case where there was a serious disturbance of the stomach with vomiting in a young girl, hæmatemesis being absent. Dr. Gannett was of the opinion that ulcer of the stomach existed, on account of a small, sharply-defined area of tenderness. My experience is that proof of the disease clinically is seldom obtained, although the records in large hospitals show that many cases are discovered accidentally at autopsy. In the case alluded to, Dr. Gannett advised absolute rest, and she recovered in the course of a few weeks, and has had no recurrence of the trouble. In this case the symptoms suggestive to him of ulcer, were occasional vomiting, but essentially the point of sensitiveness.

Post-Mortem Idrosis. — A writer in the *International Medical Magazine* records the following curious phenomenon in a case of death from angina pectoris. "The face of the corpse seemed to be bathed in perspiration, the moisture reproducing itself after being wiped off, in spite of the presence of rigor mortis and other unmistakable evidences of death. This most extraordinary phenomenon was witnessed by several local physicians who also viewed the body. The funeral was on that account delayed several hours until decomposition had fully set in."

AMERICAN OPHTHALMOGICAL SOCIETY.

Twenty-ninth Annual Meeting at New London, Conn., July 19 and 20, 1893.

(Concluded from No. 21, page 520.)

THURSDAY. — MORNING SESSION.

REMOVAL OF STEEL FROM THE VITREOUS WITH THE ELECTRO-MAGNET,

by Dr. E. E. Holt, Portland, Me.

The writer had previously reported six cases treated by this method. In the present paper he reports three cases. In all, the piece of steel had entered through the anterior chamber, fracturing the lens. The conjunctiva was separated and an incision made through the sclerotic back of the equator of the eye, the knife in each instance striking the foreign body. The electro-magnet was then introduced and the steel removed. The lens was subsequently absorbed and good vision obtained in every case, notwithstanding the fact that in the third case there was pus in the anterior chamber when the case came under observation.

A PERMANENT MAGNET FOR USE IN REMOVING FOREIGN BODIES FROM THE CORNEA

was described by Dr. Walter B. Johnson, Paterson, N. J.

It consists of a bar of steel, cone-pointed and elongated at each end. It is charged by rotating it within the magnetic field of a generator. It will continue in full magnetic strength for a long time. It has served an excellent purpose on several occasions in removing small particles of steel from the cornea, which had perforated and almost entered the anterior chamber.

SUPPRESSION OF THE VISUAL IMAGE,

by Dr. Walter B. Johnson, of Paterson, N. J.

In convergent stratismas, there is present an amblyopic condition affecting the squinting eye. Hypermetropia was considered by Donders and others as the most frequent cause of convergent squint, exciting excessive efforts at accommodation, resulting in convergence, confusion of images and subsequent mental suppression of visual image in one eye, finally terminating in an amblyopic condition. It has been claimed by Schweigger, Alfred, Graefe and others, that amblyopia is not caused by squint, but exists as a primary or congenital condition. This produces convergence in consequence of confusion of images. The variety of amblyopia in question is apparently a purely physiological condition, the fundus being normal. The amblyopia is sometimes overcome by correction of the visual defects, but vision in the amblyopic eye rarely becomes equal to that of the fellow eye.

The following case was reported: T. K., age nineteen, had been cross-eyed since the age of three years. He has never been able to discern any object with left eye. There was hypermetropia in right eye. Vision in left eye for fingers at six inches. On June 13th, enucleation of the right eye was required as the result of accident. June 18th, vision in left eye had increased to fingers at three feet; examination showed a hypermetropia of 1.50 D. Under careful practice and instruction the vision in left eye rapidly improved, so that by July 1st he could read 20.15 with correcting glass and Jæger No. 1 at twelve inches. Examination three years after the loss of the eye showed that the improvement had continued.

In this case, whatever was the change which led to the loss of vision, it was not structural either in the eyeball or the nerve centre, but was in all probability a pure amblyopia which resulted from the long-continued mental visual suppression.

A CASE OF CONGENITAL CYST OF THE ORBIT, WITH ANOPHTHALMUS,

by DR. GEORGE C. HARLAN, Philadelphia.

The patient was a well-developed and healthy child five months old. The left eye and appendages were perfectly normal. A tumor about the size of a small hen's egg filled the right orbit and projected considerably beyond it. The orbit was fully of adult size and the lids distended to more than twice their normal size. The skin was movable and natural in appearance. The cilia were well developed. The lids were separated about two centimetres. The exposed conjunctiva was congested but not much changed. There was no discharge. There was nothing to mark the position of the cornea. There was no movement in the tumor, no pulsation, and it was incompressible. Fluctuation was decided.

As the tumor was growing and the deformity great, it was decided to remove it. Incision through the conjunctiva gave exit to a quantity of clear watery fluid. The cyst was simple, the outer portion being fibrous and tough and the inner delicate, semi-transparent and bluish.

The child died twenty-four hours after operation, apparently from exhaustion following upon shock.

A careful inspection of the orbit was made after death. There was no connection with the intracranial cavity. There was no indication of any aperture. Nothing resembling an eye could be found in the extirpated cyst, though at the bottom of the sac there was an undefined mass of tissue.

A review of the literature was given; and the author concluded that the tumor was probably formed of the embryonic tissues of the eye, and that it was either an exaggerated hydrophthalmus, or a fœtal encysted coloboma, which by its early inception and enormous growth had prevented the evolution of the eye.

RESTORATION OF THE UPPER EYELID BY MEANS OF A FLAP TAKEN FROM THE CHEEK,

by DR. SAMUEL B. ST. JOHN, Hartford, Conn.

The author demonstrated a method which was applicable to cases in which the upper lid had been destroyed by disease or injury, and in which the lid was removed by operation. In making the flap, the incision commences about half an inch in front of the ear and runs forward below the lower lid about half an inch, and continues until the side of the nose is reached. It is then carried downward until the flap is of sufficient width, and then taken backward. The flap is next separated and secured by numerous stitches to the freshened surface above. The gap left is closed by separating the tissues of the cheek below the wound and sliding them upwards.

Two cases were reported in which this plan had been used with success, and photographs of the patients were shown.

EXECUTIVE SESSION.

The following were elected to membership:

Dr. F. E Cheney, Boston; Dr. J. E. Weeks, New York; Dr. Charles H. Thomas, Philadelphia; Dr. George Fiske, Chicago; Dr. Wm. H. Wilmer, Washington, D. C.; Dr. Edward Fridenburg, New York; Dr. H. B. Chandler, Boston; Dr. Wm. Cheatham, Louisville.

Officers for ensuing year:

President, Dr. George C. Harlan, Philadelphia; Vice-President, Dr. O. F. Wadsworth, Boston; Secretary and Treasurer, Dr. Samuel B. St. John, Hartfort, Conn.; Corresponding Secretary, Dr. J. S. Prout, Brooklyn.

The Society adopted a by-law limiting the membership to one hundred and fifty.

Recent Literature.

A Treatise on Nervous and Mental Diseases for Students and Practitioners of Medicine. By LANDON CARTER GRAY, M.D. 8vo, pp. xi, 687. With 168 illustrations. Philadelphia: Lea Brothers & Co. 1893.

Dr. Gray's book has been so long announced that our anticipations have for an equally long time been raised concerning it; this is apt to be fatal to a book, but in this case the anticipations have been more than realized. The work bears the stamp of a vigorous personality, it is distinctly original, and above all, it is thoroughly practical in its character. As an introduction to the work, the author gives an excellent chapter on the anatomy of the nervous system, and a chapter on electro-therapeutics. The latter has all the merits of the sections on the treatment of the different diseases. He instructs the reader in the minutest details, as to the best forms of apparatus and the methods of applying electricity, speaking a little dogmatically, but concisely, wisely, and to the point. We know of no better practical guide for the beginner than this chapter affords; indeed, in few works could he find precisely that information in regard to the little details of the management of electricity which are so important, yet which most of us have to learn through uncomfortable experience.

The author has designedly paid little attention to classification. Here we think that he has made a mistake. His question, to be sure, is pertinent, "Of what earthly consequence is the classification of the different forms of disease?" To the man who is looking for advice as to the treatment of a case of acromegaly, it makes no difference whether he finds it in the tenth chapter or the fortieth, but for the student it is, we believe, a distinct advantage to classify the various affections, to consider Friedreich's ataxia with tabes, for instance, and not nearly three hundred pages away.

To pathology much space has been devoted — indeed, in some instances, it would seem as if too much space had been given to discussions of theories — but, for the most part, the results of the most accurate and recent observations are summed up in an admirable manner. Occasionally, however, exceptions must be taken to the author's conclusions, for instance, in the section on muscular atrophy. Our knowledge as to the pathology of muscular atrophy is far from being complete, but it seems to us a step far backward to group together two of the forms of dystrophy, the spinal type of Duchenne-Aran, and Charcot and

Tooth's peroneal type under one heading, and to treat amyotrophic lateral sclerosis and pseudo-hypertrophy apart from them. Pseudo-hypertrophy, too, is said to be without atrophic symptoms, yet two pages later atrophy is spoken of as frequent. Although borderland cases undoubtedly exist, we can certainly distinguish two separate types, one of spinal, and one of muscular origin, and since the admirable treatise by Erb, which is not referred to, we are not warranted in separating pseudo-hypertrophy from the other forms of muscular dystrophy.

In the effort to condense the work into a convenient space, something, we fear, has been lost in the sections on symptomatology. The chapter on diseases of the peripheral nerves is inadequate. A single page is devoted to the symptoms of multiple neuritis, but no attempt is made to differentiate the different forms; sciatica gets but a few lines, and the different peripheral palsies are hardly spoken of. As a rule, however, the clinical sections are much more adequate.

Especial care has been given to the sections on treatment, and these form one of the most valuable parts of the book. Indeed, we know of no work on the subject of nervous diseases which gives such complete and detailed directions for treatment. The author is far from being a therapeutic nihilist — he is rather an enthusiast — but he is not led away by new fancies. He is so guarded in endorsing new methods of treatment that he makes no mention of the use of the thyroid gland in myxœdema. Nevertheless, in every section the physician will find all the minutiæ of treatment carefully detailed, and, although the author may be an enthusiast, his enthusiasm has the justification of practical success.

The illustrations deserve more than a word of praise. Many of them are original, and the execution is admirable. Bibliographical lists are attached to many of the sections, but these seem often of doubtful value. Important works are cited in the text which find no mention in the bibliography, while in some cases, wholly irrelevant works are inserted.

While other works are perhaps better for the student who is seeking after a general knowledge of diseases of the mind and nervous system, owing to their better classification and fuller symptomatology, we know few works which will give better satisfaction to the practitioner who is seeking aid in the practical management of the individual patient.

A Treatise on the Science and Practice of Midwifery. By W. S. PLAYFAIR, M.D., LL.D., F.R.C.P., Sixth American, from the eighth English, edition, with notes and additions by ROBERT P. HARRIS, A.M., M.D.

The present edition of this well-known treatise, has been so thoroughly revised and rewritten as almost to amount to a new work, yet the chapters which are most thoroughly new, that is, those which treat of subjects in which the advances of recent years have been most marked, are precisely those in which an American would see most to criticise.

The sections which relate to anatomy and physiology, pregnancy, the phenomena and mechanism of labor, and the more familiar complications of labor and the puerperium are full, thorough and carefully rewritten and wholly deserve the success which the book has already attained.

In those which treat of the management of labor the author certainly departs widely from the over-conservative and timid doctrines which have heretofore characterized English obstetrics, yet to an American, his methods and the treatment which he recommends, often seem somewhat antiquated. The same must be said of the section on operative obstetrics, and indeed of much of the treatment that is recommended throughout the book.

The section on operative obstetrics would call for still stronger criticism of the usual English timidity in obstetric operating were it not for the frequent insertions of the American editor. In speaking of a book edited by Dr. Harris, it is, of course, unnecessary to state, that the chapters which treat of the abdominal operations, and of symphyseotomy, are fully abreast of the world's progress, and in every way admirable.

It is curious to an American to see so high an authority condemning the use of traction on the cord, during the third stage of labor, and advocating Crédé's method of expression, almost as a novelty, and in terms which imply that he stands alone in this matter.

Under the treatment of pregnancy before rupture, the author sanctions the use of electricity, and decidedly recommends puncture of the sac, though he concedes that cœliotomy may be useful in the hands of a few operators of wide experience. Certainly few American authors would think this recommendation, in the words of the preface, "A satisfactory guide to the most recent advances in obstetric medicine."

Under septicæmia it is strange that, though the author concedes the septic origin of most cases, he still leans strongly to the belief that a puerperal fever of unknown (or zymotic) origin is still sometimes seen.

His directions for the treatment of sepsis are excellent, though he perhaps errs on the side of over-caution in the local treatment, and does not lay sufficient emphasis on the importance of early diagnosis and treatment.

Of the book as a whole it may be said that it will furnish admirable collateral reading to American medical students whose instruction on treatment is derived from other sources; and that on questions of treatment, the book is enormously in advance of most, if not all, other English text-books.

The Medical News Visiting List for 1894. Philadelphia: Lea Brothers & Co. 1893.

The Medical News Visiting List for 1894 has been thoroughly revised and brought up to date in every respect. The text portion (32 pages) contains the most useful data for the physician and surgeon, including an alphabetical table of diseases, with the most approved remedies, and a table of doses. It also contains sections on examination of urine, artificial respiration, incompatibles, poisons and antidotes, diagnostic table of eruptive fevers and the ligation of arteries. The classified blanks (176 pages) are arranged to hold records of all kinds of professional work, with memoranda and accounts.

The Surgery and Surgical Anatomy of the Ear. By ALBERT H. TUTTLE, M.D., S.B. (Harv.). Pp. 96. (Physicians' Leisure Library.) Detroit: George S. Davis. 1893.

The twenty-eight photogravure illustrations in this book are very good, and valuable for reference; but as much cannot be said of the text, which abounds in mistakes in spelling. The book is principally a *résumé* of otological work, especially of recent date.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, NOVEMBER 30, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

A TEMPERATE WORD FOR FOOT-BALL.

A SOMEWHAT intemperate denunciation of the game of foot-ball has manifested itself recently in the editorial columns of medical and daily newspapers. The object aimed at, in so far as there is an object or a suggestion apart from sensational writing, seems to be the abolition of the game. Now, if there is one thing that is quite certain, it is that the game of foot-ball will continue to hold a prominent place among out-door sports, and that it will preserve for some years to come much of its present form. Those who know anything about the game, and those who know much about young men and youths, will demand quietly, firmly, persistently — without fuss and without exaggeration — that the game be regulated and that the players behave themselves; and the game will be regulated and the players will behave themselves. There is no very great difficulty and no inherent impossibility in this. In proof thereof, witness the last annual match between the university elevens of Harvard and Yale at Springfield. Certainly, there never was more eager interest and feeling, whether among the actors or spectators, and yet there was no unfairness, there was no brutality, there were no accidents which could be regarded as in any degree serious. It was perfectly well understood that any player who allowed his enthusiasm to get the better of his discretion would be promptly and impartially laid aside.

The open-air sports in which university teams compete with other university or college teams, are a direct and indirect stimulus to all round physical development and well being, to self-denial, self-control, to sober and temperate living among a *very large number* of the members of the college or the university — not simply among the immediate members of the college team itself. This statement can be amply substantiated by details from the different classes, either at Cambridge or at New Haven.

There is, it is true, a period of some weeks in the autumn when the time of the members of a university foot-ball team is in much demand for other exercises than those connected with "learning," but there is one thing that their critics should know if they do not, and should remember if they have forgotten — namely, that a student who is on probation in any of his studies can have no place on a college team; moreover, it is considered a discredit to a man who is needed and would otherwise be placed, to allow himself to be thus disqualified. This obtains at Cambridge, and we believe, also, at New Haven. From this point of view the out-door sports have been a distinct stimulus to study.

During the last four years a good many matches have been played at Cambridge and elsewhere by Harvard teams. The following are the casualties reported by surgical authority: four fractures of the metacarpal bones, one fracture of the fibula, two dislocations of the elbow, one dislocation of the humerus, one probable fracture of a rib. Such injuries when received by men in training are recovered from in half the time necessary for recovery in other subjects.

The questions of betting and of gate-money have no more to do with foot-ball than with other games or sports. New York furnishes an immense attendance at high prices, and is a favorite place for college contests. It is not a good place in which to let loose a lot of excited young men. Harvard has recognized this fact and has acted accordingly. To blame foot-ball and demand its abolition, because some imprudent students are disorderly, and other too prudent students speculate in tickets, is a confusion of causes as of remedies.

We do not hesitate to say that there is less idleness, less dissipation, less brutality, less meanness and trickery, and a better physical condition among college students with foot-ball than without it, with the out-door games than if their place were taken by compulsory calisthenics and gymnastics.

ENTERIC FEVER IN THE TEES VALLEY.[1]

THE Tees Valley is a district on the east coast of England, in the counties of Durham and Yorkshire, and contains about a half-million inhabitants.

The story contained in this exceedingly interesting and thorough report is the often repeated one of an epidemic of typhoid fever due to pollution of the domestic water-supply. In his introduction to the report, Dr. Thorne Thorne, the chief medical officer, says:

"One factor alone is found to be common to the places thus suffering exceptionally from enteric fever, and this is the use of the water pumped from the River Tees. This river is found to be at all times subject to conditions of the grossest fouling by reason of the fact that human excreta and other filth are knowingly and deliberately conveyed to it. Opportunities for the access of the specific material of enteric fever to the river had been constantly recurring; and, immediately

[1] By Dr. F. W. Barry. Supplement to the Twenty-first Annual Report of the Local Government Board, 1891-92, pp. 150. London, 1893.

antecedent to the epidemic outbursts, sudden floods washed vast masses of the filth which had been accumulating on the banks of the river, down the stream, up to, and past, the points of in-take from which the water was being pumped, and, after filtration through sand and gravel, delivered to certain populations. These populations it was who suffered from the two exceptional prevalences of enteric fever. Seldom, if ever, has a case of the fouling of water intended for human consumption, so gross or so persistently maintained, come within the cognizance of the medical department; and seldom, if ever, has the proof of the relation of the use of water so befouled to wholesale occurrence of enteric fever been more obvious and patent."

The details of the report are of interest also, as bearing upon the question of the viability of the typhoid poison in running water, and the problem of the value of filter-beds as measures of protection and means of purifying polluted waters. At some of the water-works in the Tees Valley, depositing-tanks and filter-beds were in use. At Darlington, in the case of the older filter-beds, the water passes through six feet and six inches of filtering material, — three feet and six inches of gravel, varying in size from apples at the bottom to shot at the top, and above the gravel three feet of sand. In the newer filters the water passes through five feet and six inches of material, — three feet of gravel, two feet and six inches of sand. The rate of filtration is from three to four inches per hour, or about forty-five gallons per twenty-four hours per superficial foot of filter. The surface of each of these filters is supposed to be cleansed once in six weeks, and the whole sand in each filter washed on an average once in three years. Apparently, in time of flood these dispositions offered insufficient protection.

This, like Dr. Barry's previous report upon the prevalence of small-pox in Sheffield in 1887–88, gives evidence of the greatest thoroughness and care in its preparation, and is very fully illustrated with tables, diagrams and charts.

MEDICAL NOTES.

A Very Small Epidemic. — Considerable comment has been made upon the declaration of the health commissioner of Chicago, that small-pox is now epidemic in that city. The number of cases now reported is only eighteen.

Yellow Fever. — Cases of yellow fever still continue to occur at Brunswick, Ga., in spite of the frost at night. They average about two each day, and are chiefly among the white population.

Mr. Gladstone's Physician. — Dr. William H. Broadbent has been chosen physician to Mr. Gladstone, in place of Sir Andrew Clark.

The Maybrick Case Again. — There has been a renewed interest in England in the case of Mrs. Maybrick, who was convicted and is now in prison for poisoning her husband, owing to the statement of a Birmingham chemical firm, that shortly before the death of Mr. Maybrick they analyzed a quantity of German glycerine offered for sale to them, and finding it to contain arsenic, refused to purchase. Recently they have learned that it was sold to parties in the midland counties, and so may have been dispensed to Mr. Maybrick.

Prize of the American Neurological Association. — The American Neurological Association offers a prize of $200 for the best essay on any subject connected with Neurological Science. This competition is open to physicians who are legal residents of States in North and South America. Essays must be sent to the Secretary of the Association, Dr. Græme M. Hammond, on or before the first day of May, 1894. Each essay shall be accompanied by a sealed envelope containing the name and address of the author, and bearing on the outside a motto, which shall also be inscribed upon the essay. Essays shall be type-written, in either the English or French languages, and with the pages securely fastened. The Council of the Association reserves the right to reject any or all essays judged unworthy of the award. Each essay must exhibit original research, and none will be accepted that has previously been published.

An Important Immigration Decision. — Superintendent Stump, in reply to the request of the Cunard Steamship Company to be represented at the hearing in the case of a steerage passenger returned to them under the immigration law, has ruled that, "The right of appeal under the acts of Congress, of 1891 and 1893, is limited to the immigrant himself, or some one in his behalf and representing him in the one case and to one of the inspectors constituting the board of special inquiry in the other, and it is the opinion of this bureau that no other persons are proper parties to the record, or are entitled to participate in the trial or hearing of said cases. The judgment rendered affects only the immigrant personally, touching his right to land, and although incidentally it may be attended by consequences by which the steamship companies and others may be affected pecuniarily, they are not proper parties to the proceedings, and have no such standing in court, as to enable them to participate in the original trial or ask for a re-hearing or pray for an appeal."

The Use of Reading in Medicine. — In his introductory lecture on "The Principle and Practice of Medicine," at St. Bartholomew's Hospital, Dr. Norman Moore, after speaking of the wide range of reading which is open to the physician and the scanty time for study, summed up the value of medical reading as follows: "There is scarcely any medical book, good or bad, which may not be looked through to some useful purpose, if read in the light of the observations of the reader; but there are a few great authors who illuminate the mind of their readers and make them see clearly what they had often looked at, but never before fully understood. These are worth reading often. Heberden, in England, and Trousseau, in France, are of this rare merit. After its primary

object of making a man ready to observe, the true use of reading in medicine is to make him think. The difference between perfect and imperfect knowledge is not so much in the facts known as in the way they are treated by the mind. Perfect knowledge is that which has been thought over; imperfect knowledge that which has only been remembered. This is particularly noticeable in medicine where a few observations, well thought over, will make a man far more useful than the mental retention of abstracts of hundreds of books."

BOSTON AND NEW ENGLAND.

CLEARING OF BOSTON DOCKS. — The work of cleaning and dredging out the accumulated filth in the docks along Atlantic Avenue in Boston, which was directed by the Board of Health, has been finished. The deep layer of rotting fish waste has been for a long time a menance to the public health, and the Board of Health has issued an order forbidding the fish dealers to empty their refuse into the docks.

A CONTAGIOUS HOSPITAL FOR WALTHAM. — After a delay of nearly two years since the Board of Health of Waltham seriously urged the erection of a suitable hospital for contagious diseases, work has been begun on the new building. The immediate reason for beginning the work is the existence of an unusually large number of cases of diphtheria.

DIPHTHERIA IN SOUTH BRAINTREE. — The Pond Street school in South Braintree has been closed on account of the prevalence of diphtheria in the district. Three fatal cases have occurred already among the pupils of one class-room.

DARTMOUTH MEDICAL COLLEGE. — The graduating exercises of the Medical Department of Dartmouth College took place Tuesday evening, November 21st, a class of twenty-eight receiving degrees. The Medical Faculty have just passed the following vote: "That at the end of one full year of the study of medicine and one course of lectures in this school, an examination *will be required* in descriptive anatomy, physiology and chemistry. That at the end of *two* full years of the study of medicine in this school, an examination will be required in descriptive and regional anatomy and further examinations in physiology and chemistry. The examinations so passed, if satisfactory, shall stand as final."

NEW YORK.

THE SATURDAY AND SUNDAY HOSPITAL ASSOCIATION held a meeting at St. Luke's Hospital on November 20th, when a special committee which had been appointed for the purpose some time previous, reported progress in the matter of organizing similar associations in Chicago, St. Louis, and other large cities. At this meeting it was proposed that on Thanksgiving Day contribution boxes should be placed at the entrance of the grounds where the great Yale-Princeton foot-ball game is to be played.

STREET-CAR ACCIDENTS. — The introduction of he electric and cable system of surface cars ha been attended with an increased loss of life. The latest victim of the trolley cars is a policeman in Brooklyn. The previous week a seven-year-old child was decapitated, and it is stated that at least forty-nine fatal accidents have been caused by the Brooklyn trolley lines during the last twelve months. On November 24th, Dr. Paul Hoffman, assistant superintendent of the city public schools, was thrown under a cable car, and only by a miracle escaped death. As it was, four of his ribs were broken, and he was otherwise severely injured.

PRESBYTERIAN HOSPITAL DEFICIT. — The twenty-fifth annual meeting of the Board of Managers of the Presbyterian Hospital was held November 18th. The reports showed that during the past year 1,876 more patients were treated than in the previous year, and that there are now 46 pupils in the training school for nurses attached to the hospital. While the expenditures for the year amounted to $147,875, the receipts were only $58,063; so that there is a deficit of $89,-812.

CONSUMPTION OF WATER. — The report of the commissioner of public works for the third quarter of 1893, shows that the city now consumes 180,000,000 gallons of water daily, and that during the quarter, (the rain-fall having been small), nearly half of the daily supply was drawn from the water stored in the great reservoirs.

REORGANIZED AMBULANCE CORPS. — An order has been issued by the Adjutant-General of the State, abolishing the old Ambulance Corps of the National Guard, which contained about four men from each company of militia, and substituting therefor a smaller and better trained hospital corps.

THE NEW MATERNITY HOSPITAL. — On November 12th, Archbishop Corrigan dedicated the new Maternity Hospital of the Sisters of Misericordia on East 86th Street, with elaborate religious ceremonies, after which there was a public reception in the wards. The hospital is a five-story brick structure, with stone trimmings, and is 138 feet long and 73 feet in width. The cost of the new wing was $92,000, and it can accommodate 150 patients.

UNUSUALLY LOW MORTALITY. — The remarkable record of the week ending November 11th, when the number of deaths was only 641, representing an annual death-rate of 17.46 per thousand of the estimated population, the smallest ever reported, was beaten by that of the week ending November 18th, when the number of deaths was but 612, representing an annual death-rate of 16.66. The average mortality for the corresponding weeks of the past five years was 703 deaths, representing an annual death-rate of 19.14; and the fact is now assured, that the year 1893, as a whole, will show the lowest death-rate since 1883. During the week referred to, three cases of death from influenza were reported; and there were 490 cases of contagious diseases, with 87 deaths, against 419 cases and 78 deaths in the week ending November 11th

There was an increase of 42 cases of measles, 19 cases of scarlet fever, 9 cases of diphtheria and five cases of small-pox. To offset this, there was a decrease in the deaths from phthisis, pneumonia and some other diseases.

Miscellany.

THE RELATION OF THE BACTERIUM COMMUNE COLI TO APPENDICITIS.

Dr. George R. Fowler, of Brooklyn, makes a preliminary report to the New York *Medical Journal*, upon the relation between the bacterium commune coli and appendicitis, a relation which he considers one of cause and effect. His belief is based upon the observations of eight cases operated upon for appendicitis. Cultures were made at once from the seat of disease and from the appendix.

"Of the entire series of eight cases, seven gave pure cultures of the bacterium commune coli.

"In one case the bacillus pyogenes fetidis was obtained, in addition to the bacterium commune coli (examination made by Dr. E. H. Wilson, pathologist to St. Mary's Hospital).

"In four cases encysted sero-fibrinous deposits (encysted intraperitoneal suppurative peritonitis) were present.

"In two cases appendical abscess existed.

"In one case general sero-purulent peritonitis existed.

"In one case no pus or serum was found. A periappendicitis and serous parietal appendicitis existed only; the mucous membrane lining the appendix was normal. No fæcal matter was found in the interior of the tube. The cultures were made from a patch of lymph on the peritoneal surface of an adjoining portion of the cæcum, to which the tip of the appendix had become adherent. This culture gave pure bacterium commune coli. Attempts to procure the microorganisms from the sections of the wall of the appendix were unsuccessful, although more than a hundred sections were made and examined by Professor Van Cott and Dr. Wilson."

THE SAMUEL D. GROSS PRIZE.

The Quinquennial Prize of One Thousand Dollars under the will of the late Samuel D. Gross, M.D., will be awarded by the Philadelphia Academy of Surgery, January 1, 1895.

The conditions annexed by the testator are that the prize "Shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in Surgical Pathology or Surgical Practice, founded upon original investigations, the candidates for the prize to be American citizens."

It is expressly stipulated that the successful competitor, who receives the prize, shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery.

The essays, which must be written by a single author in the English language, should be sent to Dr. J. Ewing Mears, 1429 Walnut Street, Philadelphia, before January 1, 1895.

Each essay must be distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay.

The Committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year.

The Committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

JAMBUL IN DIABETES.

Graeser has reported to the Therapeutic Association of the lower Rhine the results of his study of jambul as a remedy for diabetes. The eugenia jambulana, a tree sixty to eighty feet high, belonging to the family myrtaceae, is indigenous to all the East Indies. For a long time the seeds and bark have been used in decoction by the natives for diabetes. The fresh juice of the leaves is astringent and has some value in dysentery. The experiments of Graeser were conducted upon dogs rendered artificially diabetic by Phloridzin. Both the powdered seeds and an extract from the fruit and bark were used. The reduction in the sugar elimination was marked in all cases. Any unpleasant effects from the drug were rare. In cases of diabetes mellitus in men, the administration of jambul in doses of thirty grammes a day did not give uniform results, though in each case the symptoms were much relieved. The amount of urine in all cases was diminished, in one case from ten litres to four per diem. The hunger and thirst and headache ceased and the patients gained in weight. The variable effects depended upon the differences in strength of the drugs used. Seeds from jambul of British India were less potent than those from the Java plant. Extracts made from old or dried seeds were not to be relied upon. The active principle has not yet been determined.

AN EPIDEMIC OF PRIAPISM.

Dr. Meynier, a French army surgeon, has recently published a curious bit of medical experience. A company of troops *en route*, having halted for some time at El Hacaiba, the men were nearly all seized with priapism and prolonged and painful erections. Considering that an absence for some time from a garrison town might be the cause, the surgeon ordered light diet and flaxseed tea. The condition, however, became steadily worse. The erections continued throughout the company, and the men began to complain of great lassitude and dryness in the throat. Finally many had marked hæmaturia. Careful investigation disclosed the real cause of the trouble. During their leisure the men had been hunting frogs at a neighboring stream. The poplar and willow trees along the banks were found to be thickly covered with coleoptera of the family of cantharides, *meloe*. Chilled in the early morning they fell by thousands into the water where they were gladly and greedily devoured by the frogs — which later gave similar pleasure to the soldiers. The taste of the flesh was in no way injured, but its effect upon the genito-urinary system of

the divers was disastrous. The removal of frogs' legs from the bill of fare put an end to the curious epidemic in a few days.

A PROLONGED FAST.

THERE is reported from Russia a case of unusually long fasting.[1] A young girl of seventeen was overtaken by night near the village of Ruzino in Moscow on the 24th of last November. She took refuge under a small outbuilding covered with straw. During the night it snowed violently, and in the morning the girl was unable to force her way from under the snow. The first day she ate five bits of bread she had with her, after which she had no food but the snow. Fifty-one days later she was discovered buried under three feet and a half of snow. On being taken to the hospital on January 14th, she was in a state of extreme exhaustion and unable to move a limb, though entirely conscious. There was a general cutaneous anasarca. The mucous membranes were excessively pale, and there was no trace of panniculus adiposus. The muscles were much atrophied. The respiration was 26; the pulse 84, small and feeble; the temperature 38° C. The cardiac sounds, though weak, were clear, and there was an anæmic murmur in the cervical vessels. The urine was concentrated, but contained no sugar or albumen. For the next two days she remained semi-conscious and somnolent, but rapidly recovered, and at the end of a week was able to take ordinary hospital diet.

SIR ANDREW CLARK.

ALTHOUGH the death of Sir Andrew Clark has robbed the medical profession of one of its ablest and most honored members, it has served to bring to general notice the details of a life which must always serve as an inspiration and encouragement to all who know of its marvellous industry and power.

Andrew Clark was the only child of a highly educated physician bearing the same name, and was born in Aberdeen on October 28, 1826. He lost his mother at birth and his father while still a little child. He was educated by his uncles, but passed a lonely youth, serving as apprentice to a druggist. He studied medicine in Aberdeen and Edinburgh where he was a brilliant scholar in all branches of his work. His services as assistant to Dr. Bennett in the pathological work of the Royal Infirmary, and later as assistant demonstrator of anatomy under Dr. Knox were of lasting advantage to him. Brilliant, highly trained and eager to devote himself to the scientific study of pathology his career was now seriously menaced, as signs of rapidly advancing pulmonary disease appeared with hæmoptysis. To gain outdoor life he joined the navy and after a few voyages was appointed pathologist to the Naval Hospital at Haslar, where he served for four years, a contemporary worker with Mr. Huxley. In 1853 he went to London and gained the appointment as Conservator of the Museum at the London Hospital. At that time he intended not to practise but to give his attention to pathology, — "to write a pathological work and construct an atlas of pathological specimens and then to die," as he said. He devoted himself with zeal to the work of re-examining with the microscope the large collection of specimens in his care, often spending a week over a single one. The following year he took his degree of M.D., and became a Member of the Royal College of Physicians. He was then elected an assistant physician to the hospital, and began the private practice of medicine. His health was so exceedingly poor that he was not expected to live long, and he had no family or influence to start him in his profession. His own indomitable will and energy, his determination "to die in harness," and his great ability, were all he had to start with. His work in the out-patient department was wonderfully brilliant, his diagnosis being thorough and accurate in the minutest details, yet made with great rapidity. He was at the hospital all day, and often detained his patients till late in the evening. Almost all were made to bring their urine for examination, and every now and then one had to produce his fæces also. His zeal in minute investigation literally knew no bounds. In addition to this work he served as pathologist and lecturer on physiology. In 1858 he was chosen a Fellow of the Royal College of Physicians, and in 1866 full physician to the London Hospital. The cholera epidemic in East London that year was the starting-point of Dr. Clark's great fame. The London Hospital received cholera patients, and Dr. Clark was conspicuous for his devotion to the sick, "working almost day and night in the wards or post-mortem room." It was at this time he became acquainted with Mr. Gladstone, to whom he soon became medical adviser and a most intimate friend. Up to this time his practice had been only moderate and chiefly among men of letters and science, but when he moved to Cavendish-Square his reputation and association with Mr. Gladstone led to an enormous increase in the number of his patients, and he soon became the foremost physician in London. His office practice, beginning at eight A. M., often lasted without interruption till two or three P. M. All his correspondence, which was very large, was written (often after midnight) with full directions in his own hand, a task he was able to fulfil only by "his powers of rapid writing and unfaltering powers of clear expression, his letters having scarcely a single correction or erasure." For twenty years he served as physician to the hospital at a great sacrifice of time and strength. He was led to do this by his unbounded enthusiasm for his work and a "strong conviction that to give up hospital service was to lose the habit of exact research," which could not be carried out in private practice.

His life was one of constant enthusiastic overtaxing of his strength, but was rewarded by an unbroken series of honors. He was successively the Croonian, Lumleian and Lettsomian Lecturer at the Royal College of Physicians, and a Councillor, Examiner in Medicine and Censor. In 1888 he was made President of the College, holding the office till his death. "Those who did not know him well, or had not been brought into contact with him publicly, had no idea of his great qualifications for this office. His dignity of bearing, his masterly power of conducting the affairs of a large meeting, his fluency and propriety of speech, fitted him in a peculiar manner for presiding over the college. Whether in the presidental chair, or as the representative of the college on any public ceremonial or social occasion, he always felt and displayed the dignity and responsibilities of his position, and no sacrifice was too great to enable him properly to discharge the duties of

[1] Lyon Medical, No. 44, 1893.

his office, although the time required each day was a serious tax upon his busy life." "There has been since the time of Sir Thomas Watson," wrote a distinguished Fellow a week or so before Sir Andrew's death, "no president who has discharged the duties of the office with such ability and dignity."

The great secret of his success as a private practitioner was his careful attention to small details; and his "remarkable faculty of listening patiently to all that had the privilege of finding access to him, and he hardly ever evinced any symptom of impatience or hurry. He not only listened, but remembered. . . . He never slurred a point in any case and never passed over a detail which suggested itself to him as being capable of being elaborated for the benefit of his patient. When in the fullest practice he would often spend half an hour over the complete investigation of a puzzling symptom, while his waiting-rooms were full to overflowing." His enthusiastic encouragement of his patients was another factor. He believed in fighting disease, and he inspired those who suffered from it with some of his own courage and hope.

The crowded occupations of his life left him little time for social duties; but his company and conversation were charming and attractive. His naturally critical and controversial mind often led him into discussions which nearly always took the direction of theology and speculative philosophy. The only relaxation he indulged in was reading, which he was able to indulge in whilst riding in his carriage or on railway journeys. Recreation in the true sense he hardly understood.

One of his colleagues says of him in the *British Medical Journal:* "Next to his warm-heartedness, the faculty which distinguished Clark was his limitless energy. I never saw him seem tired. He may have looked so occasionally, but he never allowed his bearing to reveal it. The impression which he generally managed to convey was that the engagement in hand, whether a committee or a consultation, was the very one to which he had been looking forward all day with expectant pleasure. He considered himself a very punctual man, but in reality was not so. He took too much interest in what he was about to be always careful of the passing minutes. In all that concerned money he was liberal, and his unostentatious charities were, I feel sure, very large."

Of his relations to his professional friends the *Lancet* says: "By the members of his own profession in every degree he will be remembered for his kindness and courtesy. Not only as a consulting physician was he able to enter into the difficulties of the general practitioner with unusual intuitive sympathy, but his valuable and overloaded time was always at the service of his colleagues in his capacity as a private physician, and, although he would not have admitted the accusation, his purse was as generously offered as his time. His early training in a hard school had left him full of gratitude for his success, and desirous to display it by generous attention to the claims of those whose work had met with less ample reward."

"There have been greater pathologists than Sir Andrew Clark. There have even been greater therapeutists. Perhaps there have been greater diagnosticians. But there have been few greater physicians, few who have made a deeper impression on the public mind and who have done more to raise the influence and to assert the claims of the medical profession."

METEOROLOGICAL RECORD,

For the week ending November 18, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: –

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r.*		Rainfall in inches†
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..12	30.42	42	46	38	74	66	70	N.W.	S.E	5	6	O.	O.	
M..13	30.11	50	57	42	70	83	76	S.	S.W.	5	12	O	O.	
T..14	29.95	50	58	43	76	67	72	W.	S.W.	7	8	C.	O.	
W..15	29.61	38	42	35	85	68	76	N.W.	W.	8	22	R.	C.	.21
T..16	29.84	34	39	28	64	51	58	W.	W.	15	14	F.	C.	
F..17	30.04	42	56	29	52	63	58	S.W.	S.W.	10	21	F.	O.	
S..18	29.90	48	57	39	61	56	58	S.W.	W.	10	12	F.	C.	
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 18, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	612	222	17.60	12.18	1.76	1.76	10.40
Chicago	1,438,000	419	196	15.60	19.44	.72	2.16	7.68
Philadelphia	1,115,562	414	128	12.00	14.44	.96	1.68	8.64
Brooklyn	978,394	297	92	14.62	17.34	1.36	2.72	8.78
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	205	72	13.92	19.20	1.44	2.88	6.72
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	88	22	13.68	6.84	1.14	6.84	3.42
Cincinnati	305,000	108	45	11.04	24.08	1.84	2.76	6.44
Cleveland	260,000	77	34	15.60	9.10	1.30	2.60	7.80
Pittsburg	263,709	104	28	17.28	12.48	1.92	4.80	1.92
Milwaukee	250,000	74	31	21.60	10.80	2.70	1.35	12.15
Nashville	87,754	33	15	18.18	15.15	—	6.06	9.09
Charleston	65,165	33	10	9.09	3.03	9.09	—	—
Portland	49,000	4	0	—	25.00	—	—	—
Worcester	96,217	19	6	26.30	21.04	—	5.26	5.26
Fall River	87,411	31	10	25.84	29.07	19.38	—	—
Lowell	87,191	—	—	—	—	—	—	—
Cambridge	77,100	31	11	16.15	19.25	6.46	—	—
Lynn	62,656	15	2	20.00	13.33	—	6.66	6.66
Springfield	48,684	9	1	11.11	10.00	—	11.11	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	14	5	28.56	14.28	7.14	14.28	—
Holyoke	41,278	18	10	44.44	11.11	27.77	5.55	11.11
Salem	32,233	8	3	12.50	12.50	—	—	12.50
Brockton	32,140	3	0	—	—	—	—	—
Haverhill	31,396	7	0	—	14.28	—	—	—
Chelsea	30,264	10	2	—	10.00	—	—	—
Malden	29,394	—	—	—	—	—	—	—
Newton	27,556	—	—	—	—	—	—	—
Fitchburg	27,146	—	—	—	—	—	—	—
Taunton	26,972	5	1	—	20.00	—	—	—
Gloucester	26,688	—	—	—	—	—	—	—
Waltham	22,058	6	0	—	3.33	—	—	—
Quincy	19,642	5	2	—	—	—	—	—
Pittsfield	18,802	7	2	28.56	28.56	—	—	—
Everett	16,585	6	0	16.66	16.66	16.66	—	—
Northampton	16,331	3	1	33.33	—	—	—	—
Newburyport	14,073	4	1	—	—	—	—	—
Amesbury	10,926	2	1	50.00	—	—	—	—

Deaths reported 2,676: under five years of age 967; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fever) 421, acute lung diseases 420, consumption 315, diphtheria and croup 200, typhoid fever 67, diarrhœal diseases 51, scarlet fever 33, cerebro-spinal meningitis 22, measles 20, whooping-cough 16, erysipelas 8, small-pox 1.

From scarlet fever Pittsburg 7, Chicago 6, New York, Brooklyn, Boston and Cambridge 3 each, Milwaukee 2, Philadelphia, Cleveland, Nashville and New Bedford 1 each. From cerebro-spinal meningitis Chicago 5, New York and Worcester 3 each, Washington, Cleveland and Pittsfield 2 each, Philadelphia, Brooklyn, Milwaukee and Cambridge and Lynn 1 each. From measles New York 11, Brooklyn 4, Chicago 3, Milwaukee and Northampton 1 each. From whooping-cough New York 4, Chicago and Worcester 3 each, Brooklyn, Pittsburg and Cam-

bridge 2 each. From erysipelas Chicago 4, Boston 2, New York and Brooklyn 1 each. From small-pox New York 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,327,846, for the week ending November 11th, the death-rate was 21.5. Deaths reported 4,254: diphtheria 127, whooping-cough 99, measles 78, fever 73, scarlet fever 66, diarrhœa 50, small-pox (Birmingham 4, Bristol and Bradford 3 each London and West Ham 2 each, Hull 1) 15.

The death-rates ranged from 11.4 in Plymouth to 28.5 in Wolverhampton; Birmingham 27.1, Bradford 20.5, Croydon 13.4, Halifax 15.9, Hull 24.5, Leeds 18.8, Leicester 17.2, Liverpool 23.0, London 21.4, Manchester 21.2, Newcastle-on-Tyne 24.6, Nottingham 22.0, Sheffield 22.6, West Ham 23.2.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 18, 1893, TO NOVEMBER 24, 1893.

Leave of absence for one month on surgeon's certificate of disability, with permission to go beyond the limits of the department, is granted FIRST-LIEUT. MADISON M. BREWER, assistant surgeon, U. S. A.

The leave of absence granted MAJOR CURTIS E. MUNN, surgeon, U. S. A., is extended two months.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING NOVEMBER 25, 1893.

M. W. BARNUM, assistant surgeon, from "Richmond" and to the "Kearsarge."

J. W. ROSS, surgeon, from Pensacola Hospital, proceed home and wait orders.

L. B. BALDWIN, surgeon, from the "Michigan" and to the Pensacola Hospital.

J. S. SAYRE, passed assistant surgeon, to the "Michigan."

A. C. CABELL, passed assistant surgeon, from the "Kearsarge" and leave for three months.

G. P. LUMSDEN, passed assistant surgeon, from the iron clads, Richmond, Va., and to the "Kearsarge."

F. A. HESSLER, passed assistant surgeon, from the "Vermont" and to the iron clads, Richmond, Va.

JAMES F. LEYS, assistant surgeon, from the laboratory, Brooklyn, N. Y., and to the "Vermont."

M. R. PIGOTT, assistant surgeon, from the "Kearsarge" and to the "Richmond."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOUR WEEKS ENDING NOVEMBER 18, 1893.

PURVIANCE, GEORGE, surgeon. To report at Bureau, for temporary duty. November 7, 1893. To inspect Reedy Island Quarantine. November 14, 1893.

CARTER, H. R., surgeon. To proceed to Jessup, Ga., for temporary duty. November 10, 1893.

BANKS. C. E., passed assistant surgeon. To rejoin station, Portland, Me. November 3, 1893.

BROOKS, S. D., passed assistant surgeon. To inspect service at Ashtabula, O., and then to rejoin station at Cleveland, O. November 13, 1893.

MCINTOSH, W. P., passed assistant surgeon. Granted leave of absence for twenty-three days. November 17, 1893.

MAGRUDER, G. M., passed assistant surgeon. Granted leave of absence for thirty days. November 1, 1893. To proceed to New Orleans for duty. November 15, 1893.

GOODWIN, H. T., passed assistant surgeon. Leave of absence extended thirty days. October 24, 1893.

COBB, J. O., passed assistant surgeon. Leave of absence extended twenty days. November 14, 1893.

GUITERAS, G. M., passed assistant surgeon. Granted leave of absence for thirty days. November 14, 1893.

PERRY, J. C., passed assistant surgeon. To rejoin station, Vineyard Haven, Mass. November 3, 1893.

STEWART, W. J. S., assistant surgeon. To proceed to Reedy Island and Delaware Breakwater Quarantine Station, for temporary duty.

STRAYER, EDGAR, assistant surgeon. To rejoin station, Boston, Mass. November 3, 1893.

CENSORS' EXAMINATION.

The Censors of the Suffolk District Medical Society, officiating for the Society at large, will meet to examine candidates for admission to the Massachusetts Medical Society at 19 Boylston Place, on Thursday, December 21, 1893, at 2 P. M.

Candidates should make personal application to the Secretary and present their medical diploma, or its equivalent, at least three days before the examination.

For further particulars, apply from 2 to 3 P. M., to

JAMES J. MINOT, M.D.,
188 Marlborough Street. *Secretary.*

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL OBSERVATION. — A regular meeting will be held at 19 Boylston Place, on Monday, December 4th, at 8 o'clock.

Dr. W. E. Fay will report a "Case of Endocarditis." Discussion by Drs. J. J. Minot, W. F. Temple and F. Coggeshall.

Dr. E. J. Forster will report a "Case of Unique Laceration of the Cervix."

Election of associate members.

JOHN C. MUNRO, M.D., *Secretary.*

MASSACHUSETTS MEDICAL SOCIETY, SUFFOLK DISTRICT. — The Surgical Section of the Suffolk District Medical Society will hold its regular monthly meeting at 19 Boylston Place, on Wednesday evening, December 6, 1893, at 8 o'clock.

Appendicitis will be the subject for discussion. Dr. M. H. Richardson will open this discussion with remarks based upon one hundred and eighty-one cases. Drs. H. H. A. Beach, J. W. Elliot, Alfred Worcester, of Waltham, will be present. It is hoped that many who have had experience in the management of this disease will contribute something to the discussion.

Material illustrative of any subject in surgical pathology is of interest to the section.

CHARLES L. SCUDDER, M.D., *Secretary*, 1 Marlborough St.

APPOINTMENT.

ARTHUR P. CHADBOURNE, M.D., has been appointed physician to Out-patients at the Carney Hospital.

RESIGNATION.

W. THORNTON PARKER, M.D., of Groveland, Mass., has resigned the Professorship of Climatology in the College of Physicians and Surgeons of Boston.

RECENT DEATHS.

JOHN M. KEATING, M.D., LL.D., formerly of Philadelphia, and well known as the editor of the "Cyclopædia of the Diseases of Children," died at Colorado Springs, November 17th. He was the founder of the "International Clinics," and one of the editors of the *Climatologist*.

DR. CHARLES WARRINGTON EARLE, whose death was noted last week, enlisted in the Federal Army at the age of sixteen. Before reaching his eighteenth birthday he was promoted to second lieutenant, and in this capacity commanded his company at the battle of Chicamauga, where out of forty-five men in the company, thirty-five were either killed or wounded. Official reports of the battle made special mention of his bravery. On retreat of the army into Chattanooga, Lieutenant Earle was captured and sent to Libby Prison. He was one of the men who escaped through the famous tunnel and after a week of wandering through the Virginia woods, reached the Union lines near Williamsburg. Returning to his command, he was promoted to first lieutenant. After the war he commenced the study of medicine and settled in Chicago.

HENRY BRONSON, A.M., M.D., died at New Haven, Conn., November 26th, aged eighty-nine years. He graduated from the Yale Medical School in 1827. He was the author of a "History of Waterbury," his native town, and a number of pamphlets on political economy. Several years ago he gave $83,000 to Yale University, $20,000 to the General Hospital of New Haven and $10,000 to the Waterbury Hospital.

BOOKS AND PAMPHLETS RECEIVED.

Twentieth Annual Report of the Board of Health of the City of New Haven. 1892.

Annual Report of the Commissioner of Patents for the Year 1892. Washington: Government Printing Office. 1893.

Twenty-fourth Annual Report of the State Board of Health of Massachusetts. Pub. Doc. 34. Boston: Wright & Potter Printing Co., State Printers. 1893.

Transactions of the American Otological Society, Twenty-sixth Annual Meeting, New London, Conn., July 18, 1893. Vol. V. Part 3. Published by the Society. 1893.

Statistics of Public Libraries in the United States and Canada. By Weston Flint, Statistician of the Bureau of Education. Bureau of Education, Circular of Information, No. 7, 1893. Washington: Government Printing Office. 1893.

Original Articles.

REDUCTION OF CERVICAL DISLOCATION: A SUCCESSFUL CASE.[1]

BY G. L. WALTON, M.D.,
Physician to Neurological Department, Massachusetts General Hospital; Clinical Instructor in Neurology, Harvard University.

THE frequency of cervical dislocation without fatal result, is a subject to which I have already called attention in various articles,[2] the number of cases coming under my observation showing that the lesion is not one of great rarity, although probably frequently overlooked. The discomfort of this disability, even where no paralysis or special pain is present, can hardly be overestimated, and the disfigurement is by no means trivial. Relief of the condition is certainly a desideratum, and such cases as the one I have to report seem to show that such relief is within easy reach when the relations of the parts are thoroughly understood.

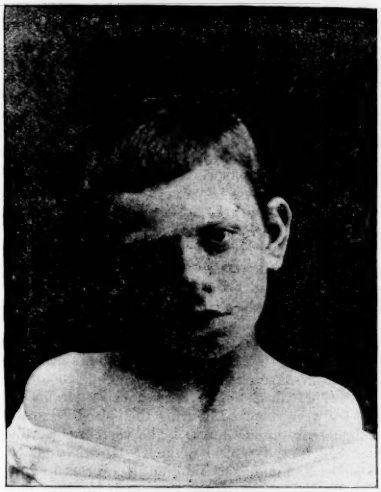


FIG. 1. Before operation.

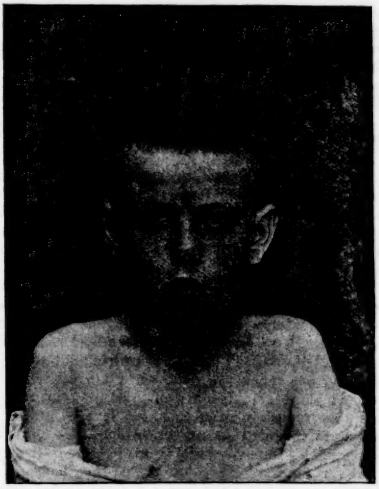


FIG. 2. After operation.

CASE. R. H., a boy ten years of age, fell from a shed about a week before his application to the hospital. He came to the Surgical Out-Patient Department of the Massachusetts General Hospital, in the service of Dr. Mixter, who recognized the trouble at once, and who kindly asked me to see the case.

The boy was fairly developed and well nourished. The head was bent towards the right shoulder, the face turned to the left, and the chin somewhat elevated, the position being that of torticollis from spasm of the sterno-cleido-mastoid on the right. This muscle was, however, lax, while the muscles on the left side of the neck were put upon the stretch. He could not voluntarily straighten the head, although it could be forced around so that the face pointed forward, but immediately relapsed when left to itself. There was a hollow over the spinous process of the fourth or fifth cervical vertebra. Examination of the chest was negative, the respiration was normal (21), the pulse 71, the temperature 98.5°. The gait was normal. There was no paralysis of motion or sensation in either extremity, and no other abnormality, except the displacement of the neck. There was no special complaint of pain, except on lying down (practically impossible), and no special swelling or bogginess of the tissues. The diagnostic features of typical unilateral dislocation were therefore present: namely, immobility and displacement, with the head in the position of torticollis, with laxity of the sterno-cleido-mastoid on the side which would produce such deformity, together with a stretching of the muscles on the other side of the neck.

We decided upon immediate operation, and the patient was admitted to the house for this purpose, in the service of Dr. Beach. Dr. Beach decided, at my suggestion, to attempt reduction by retro-lateral flexion and rotation without extension.

The patient was etherized, the vertebræ first unlocked by bending the head diagonally backwards and towards the left, then rotated into place. No force was required. Reduction was immediate and complete. The hollow over the spinous process disappeared. There was no click heard. He was sent to the ward, recovery from ether being good. The next day, all motions of the head were perfect, and no pain was complained of on lying down. The patient was not allowed, however, to raise the head from the pillow. On the fifth day after operation the boy was

[1] Read before the Surgical Section of the Suffolk District Medical Society, November 1, 1893

[2] Journal of Nervous and Mental Diseases, 1889; also Boston Medical and Surgical Journal, March 31, 1889.
Boston Medical and Surgical Journal, May 8, 1890.
International Clinics, 1892, 2d series, ii, p. 207.

apparently well, and was allowed to have his clothes. Going into the yard without permission, he ran out of the back gate. He was heard of at intervals after this time, remaining well as far as the head was concerned, although he had an attack of diphtheria in the course of the summer. The second photograph, taken about three months after the operation (the earliest opportunity), shows perfect position of the head.

This case represents the complete form of unilateral dislocation, the right articular process of one vertebra slipping forwards and falling down upon the pedicle of the vertebra below — that is, into the intervertebral notch, this accident being rendered easy by the comparatively horizontal position of the articular processes in the cervical region. The position of the vertebræ is seen in the cut (Fig. 3).

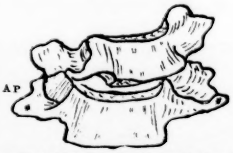


FIG. 3. Anterior view of vertebræ in complete unilateral dislocation, as seen in Fig. 1. A P, articular process of upper vertebra displaced forwards.

Völker considers rotation the essential factor in the displacement, differing from those who regard abduction as also important. Such dislocation is practically impossible in the dorsal or lumbar region without fracture. Fracture of this process also sometimes occurs in the cervical region, together with displacement — a fact which should be taken into consideration before recommending operation. This complication is, however, fortunately rare. The combination was present in one case, however, which was seen by Dr. Richardson, Dr. Hildreth and myself, in which the position of the head was much the same as in the case here reported; but the probability of fracture rendered attempt at reduction dangerous, for fear of producing injury to the cord or nerves, which were hitherto intact. This immunity will be made clear if two cervical vertebræ are placed in the position indicated, it being perceived that the lumen for the spinal cord is little if at all invaded.

Coming to the question of the proper method for reduction, if one attempts to separate the two vertebræ, which have been placed in the position indicated, by direct extension, it will be seen that the vertebræ must be very widely separated at every point in order that the displaced articular process may be elevated. In fact, the separation is so great that it would seem almost incredible that reduction had ever been accomplished in this way were such cases not on record. It is not impossible that in some of the successful cases reported as done by extension, abduction and rotation were added to extension, these three elements constituting practically the plan advocated in the "American Text-Book of Surgery" (1892). The extension may probably, however, be advantageously done away with; especially if retro-lateral flexion be substituted for abduction, the latter movement tending, perhaps, in some cases, to interfere with reduction by bringing more closely into apposition the two articular processes already impinging; whereas the backward movement is practically certain to unlock the displaced upper process. Since advocating this movement and the discontinuance of extension in previous contributions,[3] I find, on further study of the literature, that Richet[4] and Hueter[5] advocated similar plans early in the sixties, Richet[6] proposing abduction and rotation, though not without extension, and Hueter discarding extension. Völker[7] discussed the subject in 1876, considering extension and rotation equally efficacious with abduction and rotation. Hueter's plan seems to have been disregarded in practice, and since his time, as before, extension has been generally, in fact almost invariably, relied on as an essential part of the reduction. I find no reference to Hueter's suggestion in the "International Encyclopædia of Surgery" (1884), where extension is recommended as an essential part of reduction. Stimson[8] regards Hueter's plan favorably in his work on dislocations.

The essential elements in the plan here advocated are, (1) dispensing entirely with extension; (2) using only retro-lateral flexion and rotation. The plan is not, therefore, entirely novel, but is really a reversion to Hueter's methods, with a modification of the direction of the initial movement from simple abduction to retro-lateral flexion.

The extension generally practised seems to me not simply superfluous, but to detract from the best result, in that it tends to draw up the lower, along with the upper segment, and hence only to interfere with the lever movement which really accomplishes the unlocking.

It might be supposed that the tension of the muscles would have also to be taken into consideration in the operation. Apart from the fact, however, that etherization should always be employed in the operation, which would render the muscles lax, experiments on the cadaver show that the muscles may be practically disregarded, the ligaments alone serving to hold the vertebræ firmly in the new position. Such experiments (previously reported) were conducted by Dr. Richardson and myself in the dissecting-room of the Harvard Medical School. In a series of bodies all muscles were removed, leaving the spinal column with its ligaments alone intact. The vertebræ were then displaced in the typical manner. It was found that no moderate amount of traction in a direct line would raise the displaced articular process in the least degree. It was found, however, easy to unlock the displaced articular process by retro-lateral flexion, that is, by bending the head obliquely backwards and to the side — the side opposite to that of the displaced process — that is, in the typical (complete) case, to the side opposite to that in which the head is bent. For this manœuvre it was found that an inappreciable amount of force was required, and comparatively little elevation. Rotation into position completes the reduction. This was the method adopted by Dr. Beach in the case above reported, and with perfect success.

Cases sometimes occur in which the position is not one of the complete variety. As an instance, I will

[3] Boston Medical and Surgical Journal, September 15, 1892, p. 265. Journal of Nervous and Mental Diseases, September, 1892.

[4] By Richet's original report it seems that strong extension was practised by an assistant; while he, by putting his own hands over those of the assistant, performed the abduction and rotation, adding at the same time something to the extension. This seems to have been overlooked by Hueter, who made an abstract of Richet's article, and who gave him (Richet) the credit, which was rather due to himself, of abandoning extension.

[5] Langenbeck's Archiv., Bd. ix, s. 946.

[6] Gaz. des Hôp., 1863, p. 574.

[7] Deutsche Zeitschrift f. Chirurgie, 1876, vi, p. 424.

[8] Fractures and Dislocations. New York, 1888.

cite the case (already published), of which the photograph is here given, of a boy who fell upon the ice while skating backwards. Displacement with immobility occurred, followed by paralysis of the shoulder and considerable pain in the neck. When seen at the hospital some months later, the condition was that represented in the picture. It will be seen that the head is bent to the left, and that the muscles on the right are put upon the stretch. The position of the head is, however, not that of torticollis, in that the chin is not rotated to the left, nor elevated. The obvious inference in such a case is either that the articular process on the left has slipped backwards, or that the articular process on the right has slipped forwards, but has not fallen into the intervertebral notch. Manipulation of the vertebræ on the skeleton shows that the former dislocation would be an extremely improbable one, at least, unaccompanied by fracture,[9] and

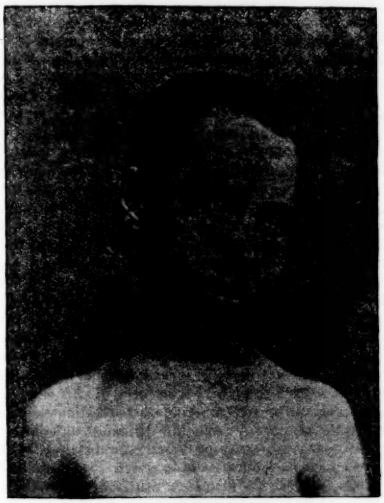


FIG. 4. Incomplete form of dislocation.

that, even if it were possible, the head would not be bent to the left, but, if anything, rather to the right. Displacement of the right articular process in the manner indicated would, however, explain perfectly the position of the head; as this process, if arrested in the course of riding over the articular process below, would be higher than the corresponding process on the left (Fig. 5), and thus cant the head to the left, while turning the face in the same direction. To reduce the dislocation in this case the head should certainly have been bent backwards and to the left, then rotated. It is not, therefore, safe to blindly follow the rule of bending the head, either in the direction opposite to, or towards that in which it is already bent.[10] Paralysis in this case (due probably to stretching of nerve roots), which included the supra- and infra-spinatus and the deltoid, gave us a clew to the height of the displacement. There was also an irregularity in the spinous processes at about the height from the third to the fourth vertebra. It might be supposed that such displacement would always be easily recognized in these cases. This is, however, not the fact. Examination of the spinous processes should always be made, but in many cases will be found unsatisfactory, especially where there is a swelling of the tissues, such as sometimes occurs in comparatively fresh cases.

Bilateral dislocation, both forwards and backwards, is comparatively rare. I have seen one example of the former and have a picture (given me by Dr. Richardson) of the latter. In the former case the head was displaced forwards, and the face pointed upwards; in the latter, the chin was bent towards the chest. Direct extension in such cases has required extreme force and has not always proved successful. It would seem reasonable, therefore, as Heuter formerly suggested, that the attempt be made to first reduce one articular process, then the other, in the method indicated for unilateral dislocation, extension here also probably hindering rather than assisting.



FIG. 5. Anterior view of displaced vertebræ in form of dislocation seen in Fig. 4. A P, articular process caught before dropping into intervertebral notch.

This whole subject appears to have received little attention in comparison with its importance; partly, perhaps, because such accidents are erroneously considered extremely rare. In Lidell's elaborate article[11] on the subject the different forms are described with great accuracy, and twenty-nine cases of unilateral dislocations are quoted from Ashhurst's tables. I have already reported sixteen cases of dislocation without fatal result, since which I have seen two more typical cases and several others in which this diagnosis was taken under consideration, but in which the displacement was so slight as to render the diagnosis uncertain. Most of these cases were unilateral. This would seem to indicate that the lesion is not one of great rarity. The subject is renewed here for the purpose of calling attention to the importance of being on the lookout for this condition as well as of renewing the discussion regarding the proper method of reduction, and establishing the success of the method advocated. Operative interference has already proved successful in a large number of cases, as already stated, generally, by direct and forcible extension combined with manipulation of the displaced parts. Dr. Burrell

[9] Blasius, quoted by Stimson, only found one case of backward unilateral dislocation, and in this case fracture occurred also of the lamina and body of the vertebra below.

[10] Stimson regards this form as the more common, alluding to the complete form as follows: "Not only may the abduction of the upper segment of the column, which is necessary to the production of the dislocation, be almost entirely corrected by the sinking back of the articular process of the upper vertebra into the notch of the lower one." In this description of the proper method of reduction to which I have alluded, this form is also apparently taken as the basis, for he says the articular process should be freed by still further abducting the head and upper segment of the column (away from the side of the dislocation).

[11] International Encyclopædia of Surgery, vol. iv, p. 709.

informs me, however, that he has performed the reduction without extension, and I dare say others have done so without reporting the cases.

The number of cases of spontaneous reduction observed is striking, in contrast with the cases of operative interference, where extreme force has been necessary. Dr. Beach has forwarded me a communication regarding a case, hitherto unpublished, occurring in his practice, which will serve as an excellent example of spontaneous reduction. The communication is as follows:

BOSTON, October 10, 1893.

MY DEAR DR. WALTON: With this I forward the notes of a case which occurred in my private work, and may be added to the hospital case if you would like to have it.

In June, 1889, a child between six and seven years of age was brought to me with the deformity characteristic of dislocation in the cervical region of the vertebræ. She had fallen from a hammock a few days before that, and, either in falling or striking, produced the luxation.

There was no contusion or tenderness to indicate the location of a blow, nor could she give any clear idea of being struck in the fall. Upon examination of the spines of the cervical vertebræ, the line from the second to the fifth was concave, the convexity towards the pharynx. An inspection of the larynx disclosed a convexity corresponding to the body of the third vertebra. For the first few days after the injury the muscles of the neck were rigid, and there was lameness on both sides of the neck, not well defined. Very little motion was possible. Rotation began first, and afterwards flexion. With the exception of some difficulty in eating there was no impairment of any function.

At the time of her visit to me, she had lost a certain amount of muscular rigidity and could flex and rotate the head to a limited degree. In view of her improvement, I advised against any extension under ether, and requested that a plaster cast be made to preserve a record of the deformity. Before this could be done, however, a spontaneous reduction took place on the second night after my examination, when, after being much fatigued by her journey, she slept very soundly. On the following morning the cervical vertebræ were in perfect position and she had free motion of the head in every direction.

Yours sincerely,
H. H. A. BEACH.

There was considerable controversy in former times as to whether pure dislocation of the vertebral column was possible even in the cervical region. This point has, however, become so fully established as to require no discussion here. It is certainly true that pure dislocation in the dorsal and lumbar regions is practically impossible; in the cervical, however, it constitutes a large proportion of the cases. Lidell's estimate that dislocations of the cervical vertebræ constitute one-half the cases of vertebral injury met in civil practice, is probably not an over-estimation. Bryant [12] treats this subject as being of comparatively little importance to the practising surgeon. Still, as Lidell has pointed out, the establishment of this fact and the diagnosis of dislocation from fracture, or the combination, is of great importance when we come to consider the question of operation. On this point, namely, the advisability of operation, there has been in the past more or less difference of opinion. Boyer and Dupuytren, for example, object to attempts at operation as dangerous. Erichsen considers the attempt only justifiable where the danger is imminent. Porta, Bryant, Ashhurst, Lidell and others, on the other hand, favor operation. Lidell states that there is a hope that the fatality will be considerably diminished by improved methods. It would seem that successful cases of reduction have been already sufficiently numerous to warrant the attempt, with care, even under the methods commonly employed. Successful cases have been reported, for example, by Gray,[13] Wood,[14] Völker,[15] Hickerman,[16] Schuk,[17] Schranth,[18] Stout,[19] Aubert,[20] Van Walther,[21] Guerin,[22] and others. Ashhurst, in his list of twenty-nine cases of unilateral cervical dislocation, reports sixteen in which attempts at reduction were made, all but one being successful. It seems probable that this is a rather large proportion, many unsuccessful cases having probably not been reported. Among unsuccessful cases followed by death may be mentioned those reported by Gaitskill,[23] Spencer,[24] and Petit Radel.[25] There have been unsuccessful operations followed by spontaneous recovery.

To recur to Völker's views: this writer has reduced a case of complete unilateral dislocation by extension and rotation (the reduction requiring, however, several attempts for its completion), and argues that this method is equally logical and easy with that which he has credited to Richet — an opinion which seems generally to have prevailed since that time.

With regard to direction of abduction, when practised, there seems to have been some obscurity of expression. Völker quotes Hueter as recommending to bend the head towards the shoulder towards which it is already bent, then to rotate; but rightly comments that in cases of complete dislocation this would be exactly the wrong direction. He substitutes, therefore, the suggestion of bending the head to the side where no projection (Hervorragung) is noted; then rotating. It is not impossible that the obscurity of these directions have been in part at fault for the non-adoption of the method. These arbitrary rules are difficult to remember; but if one attempts to carry any given rule into effect, I should suggest the following: Perform retro-lateral flexion toward the side toward which the face is turned by the dislocation, then rotate back to place. The force of this rule will be appreciated by remembering that rotation must always take place away from the displaced side, except in the case (which may be practically disregarded) of displacement backwards. It is also well to remember in diagnosis, that the face is turned from the displaced process, no matter which way the head is bent.

In some cases, it is true, there may have been so little rotation in the dislocation as to render the diagnosis difficult between dislocation and inflammatory process. Gentle attempts at reduction would, however, as Völker states, be always in order in such cases, to effect the cure, and at the same time to establish the diagnosis.

The ease with which spontaneous reduction takes place in sleep was commented on by Völker as due to relaxation of the muscular strain kept up in the waking hours to prevent pain, such reduction being easily

[12] Practice of Surgery, Chapter xviii.

[13] Annals of Anatomy and Surgery, February, 1882; also, American Journal Medical Sciences, April, 1882.
[14] New York Medical Journal, January, 1857, p. 13.
[15] Loc. cit.
[16] Buffalo Medical Journal, vol. x, p. 702.
[17] American Journal Medical Sciences, July, 1841, p. 207.
[18] Hamilton: Fractures and Dislocations, 1880, p. 606.
[19] University Medical Magazine, 1891-2, iv, p. 286.
[20] Contrib. à l'étude des luxations des vertèbres cervicales; Quelque cas hereux de reduction, Paris, 1889.
[21] J. der Chirurgie und Augenheilkunde, Berlin, 1822, iii-1, p. 197.
[22] Revue Medicale, 1840, p. 276.
[23] London Repository, vol. xv, p. 282.
[24] Boston Medical and Surgical Journal, vol. xv, No. 11.
[25] Note to Boyer, Malad. Chir., vol. v, p. 118.

conceivable when it is realized that the part of the articular process which bars the way to reduction is only about six millimetres in height, perhaps less.

The advisability of using ether in all attempts at reduction is too apparent to require mention.

With regard to the method usually advised and followed, Lidell says (loc cit.) p. 723:

"Had I this case now to treat, I should, as soon as it became clear that the man would not recover under an expectant line of treatment, that is, on the second morning after the accident, relax his muscles completely by administering an anæsthetic, and then by carefully made *extension and rotation, etc.*,[26] try to restore the dislocated bone to its normal position."

He quotes Ashhurst (p. 729) as saying: "In the treatment of dislocation of the cervical region, the mortality has been nearly four times greater when constitutional or general treatment has been relied on exclusively, than when attempts have been made to reduce the dislocation by *extension, rotation, etc.*"[26] Lidell continues: "It seems to me that the inference is fairly warranted from the foregoing considerations that *extension*[26] (combined, of course, with rotation or pressure, as required) should be employed in every case of spinal dislocation or of spinal fracture with dislocation where the spinal functions are disturbed.

Looking more closely into the order of procedure, we find that one plan seems to have been to first rotate in the direction in which the head is already turned, then to extend and rotate the head back to place (Maxson,[27] Wyeth[28]); another method has consisted of extension followed by rotation (Rathburn,[29] Gray,[30] Perisot, Berthold,[31] Lucas[32]); another, suspension of the head and rotation of the body (Morton[33]); another, as extension and manipulation (Van Walther). In bilateral dislocation steady extension, followed by direct replacement without rotation, has been adopted (Ayers[34]); with slight rotary movement (Stout); extension with rocking movement, and finger in the pharynx (Carter[35]).

With regard to the degree of force used in extension, this seems to have been in most cases very considerable: Suspension of the head between the hands (by Morton); strong extension (by Wyeth); a considerable amount of force — "all, I believe, I was capable of exerting" (by Carter); chin and occiput held by the hands of the operator covered by those of another, strong traction being employed with counter-extension by folded sheets around the shoulders, a third physician placing the hands under those of the other two, to aid replacement (Ayers); "steady pulling, gradually increasing" (Thon[36]); three pull the head and one the shoulders with the whole weight (Schranth); place the knees on the shoulders, drawing the head, then turning it into position (Erichsen); a hand on the forehead and on the occiput covered by those of an assistant, counter-extension being firmly maintained (Gray).

Even the degree of force indicated has not always proved successful, as in the case of Warren, in which subsequent spontaneous reduction pointed the way to direction rather than force as the key to the situation.

It is certainly in the line of advance (notably illustrated by Bigelow's brilliant exposition of hip-joint reduction) in other dislocations to do away with this excessive force, and to follow backwards as nearly as possible the movements made in dislocation — an object which we are here aided in accomplishing by the use of the fulcrum.

The question naturally presents itself: After how long a time shall we advise operation? Gray's case was successful after four months. The spontaneous reduction in Warren's case, already alluded to, took place after nearly as long a period. Guerin reduced a case after seven months. We should err on the side of caution when any question of fracture is present, or where great force is to be used, even in simple dislocation; but when we consider how little force is necessary by the method advocated, as shown by Beach's case, there seems little or no risk in attempting reduction after a considerably longer period than four months has elapsed, though the exact length of that period it would seem premature to determine without further experience. Attempts should be abandoned if the displacement is not easily reduced.

[26] The italics are mine.
[27] Buffalo Medical Journal, January, 1857, p. 479.
[28] Hospital Gazette, New York, June 28, 1879, p. 275.
[29] Peoria Medical Monthly, 1839, ix, p. 280.
[30] Loc. cit.
[31] Monthly Abstract Medical Science, June, 1875.
[32] Medical Gazette, Sydney, 1884–5, iv, p. 41.
[33] Medical Record, October 4, 1879.
[34] New York Medical Journal, January, 1858, p. 13.
[35] New York Medical Record, 1885, xxviii, p. 257.
[36] Austral. Medical Gazette, Sydney, 1883–5, iv, p. 82.

SALINES IN APPENDICITIS.[1]

BY S. C. GORDON, M.D., PORTLAND, ME.

DR. M. H. RICHARDSON, in his article published in the JOURNAL of September 28th, objects very strongly to the use of salines in appendicitis, especially in the early stages; and inasmuch as this is the time when in my opinion they are the most required and will do the most good, I cannot allow some of his positions to pass without comment, particularly as I am one who has "advocated" the prompt and free use of this method of treatment.

In the first place, I think Dr. Richardson does not fully state the case when he says: "The theoretical action of cathartics in peritonitis, as given by various men, consists in an absorption and removal by intestinal drainage of the toxic products of certain micro-organisms which, multiplying in or near the peritoneal cavity, endanger life." Now while this is true, it does not express the whole truth. I am just old-fashioned enough to believe that general bleeding oftentimes does an immense deal of good in the sthenic form of inflammation, not by removing "toxic products" alone, but diminishing the volume of blood in the general circulation, thus unloading the distended vessels in the part inflamed, and facilitating absorption of the liquid exudate, before any purulent degeneration takes place in it. I believe and know from "very considerable experience" that leeches will almost invariably stop the inflammatory process in orchitis and many other local inflammations, for the same reason. It is not simply the removal of "toxic products," but in the case of appendicitis it is more the removal of exudate while in a liquid state, in order to prevent the "toxic" elements from the intestines poisoning it and thus producing pus.

When we are called to the case there is a beginning or well-advanced peritonitis, caused by septic matter

[1] A reply to Dr. Richardson's article of September 28, 1893.

that has escaped from the appendix (in the cases where perforation has occurred), all the blood-vessels in the vicinity are enormously distended, and exudate is being poured out in the intervascular spaces. The *prompt* and *free* use of salines unloads these distended vessels, and promotes absorption of the exudate, before it is converted into pus. By thus promptly relieving the congested vessels, and removing pressure, pain and fever are both relieved, and in nine cases in ten, in my "considerable experience" the case is practically ended for that time. Other and similar attacks may follow soon or late, unless operation for removal of the diseased organ is made in the interval, which I always advise.

Again, Dr. Richardson says: "I do not object to carrying out this theory after the appendix has been securely tied, or after it is clear that there is no danger of rapid extravasation, but in the first forty-eight hours of appendicitis, I look upon the administration of salines as extremely dangerous, and as a not infrequent cause of general peritonitis and death. The reasons for this lie in the pathological conditions that exist in a very considerable percentage of cases. If in a given case there is a perforation in an appendix of large lumen, salines by liquefying the fæces and increasing peristalsis, *will cause an immediate and almost invariably fatal extravasation.*"

My answer to this is: First, the septic material has already escaped from the appendix and produced the peritonitis, and removing the "shell" which is left does not remove the *cause*, for that has already "gotten in its work" and done all the harm it can. It is the *condition* we are called upon to treat, and not the "tenement" that once held the toxic element. *Removing the former habitat of the cause does not remove the cause or the effect*, but it does add traumatism to an already serious matter.

Again, in my "very considerable experience," I have never seen a case, with one exception, where any fæcal matter has existed in the "lumen" of the appendix, no matter how "large" the lumen. The effect of inflammation is to close the end nearest to the cæcum, so that no material escapes from the bowel. Salines do not, therefore, cause "extravasation" from the intestine. In the single exception alluded to, there was simply the *color* of fæcal matter, and not any substance, that had escaped, and the proximal end was closed, so that no more could escape.

Dr. Richardson says in a subsequent paragraph, "There is the same objection to the use of salines in gunshot wounds of the intestines, in perforation of typhoid fever, or in perforating ulcers of the intestinal tract generally." I agree that there is a most decided objection to the use of salines in the pathological conditions named, but I fail to see wherein the analogy lies between these conditions and those usually found in appendicitis. In the latter there is a perforation through the appendix only, which allows some septic material to escape, while the opening to the bowel is practically shut up. While in the "gunshot wounds, etc.," there is a direct opening into the bowel itself. While the "same objection" may apply in the latter condition it fails to apply in the former, simply from the fact that the conditions fail to be the same. In "catarrhal appendicitis without perforation" I agree fully with Dr. Richardson that it is the "mildest of diseases" (of the kind), *if you always know it when you see it.* But even that is attended with a certain amount of peritonitis: and salines can do no harm, but can, and do accomplish much good by terminating the case by rapid resolution, thus preserving the integrity of the tissues, so that perforation is much less liable to occur, and "general spreading peritonitis" is prevented. I am fully in accord with Dr. Richardson when he says that these cases of "general spreading peritonitis, far from being curable by salines, are, in my opinion and experience, beyond relief even by the most radical surgical measures, except in very rare instances." I know of several instances, however. I do believe also if the rule should be established in the profession, that at the *very earliest symptoms* of appendicitis salines should be promptly and effectually used, a large number of these cases could be prevented.

When we consider the percentage of natural cures reported, we should hesitate long before operating in the acute stage. Ranvers reports 2,000 cases in the Prussian army with 96 per cent. of cures without operation; Charité Hospital, Berlin, 54 cases with three deaths; Nothnagel's Clinic, Vienna, 65 cases and three deaths, etc. But I do believe strongly in operation after a well-marked attack is convalescent. There is always danger of relapses, and the danger of operation in the interval is, in my opinion, very small — one or two per cent. possibly.

Since June 14, 1892, I have operated nine times in the interval of attacks (none less than two, and one eight attacks). Seven of the nine I treated through the acute stage by salines. During that time I have also treated four others without operating afterwards. All recovered without any serious symptoms following the operation. No one of the four has yet had relapse. Some of these cases I did not see until pus had formed (as the operation afterward showed), and yet I preferred to risk medical rather than surgical treatment until convalescence was established. I think the result proved the wisdom of my course. Results are, after all, what we work for; and while statistics are often fallacious, yet we are governed by them in a measure in our own line of work.

I am not prepared to say that I should refuse to operate in the acute stage, where there is clearly an abscess to be drained, or a "general spreading suppurating peritonitis"; but I shall in the future be governed by my "very considerable experience," and treat all cases in the *early stages* by salines.

THE SYMPTOMS OF SENILITY IN PARALYSIS AGITANS.[1]

BY THEODORE DILLER, M.D.,
Visiting Physician to the Insane Department of St. Francis Hospital, Pittsburg, Pa.

THE recent investigations of Dana[2] and Ketscher,[3] throw a flood of light on the morbid changes which produce the symptom-complex known as paralysis agitans. These changes, confined chiefly to the cord, consist in dilatation of the blood-vessels, infiltration of round cells with marked degeneration and pigmentation of the nerve cells. Ketscher found miliary aneurisms and hæmorrhages throughout the cord. Both these authorities unite in saying that the primary change occurs in

[1] Read before the Pittsburg Academy of Medicine, December 4, 1893.
[2] Journal of Nervous and Mental Diseases, May 1, 1893, pp. 359, 360.
[3] Neurolg. Centbl., No. 5, 1893 (quoted in Journal of Nervous and Mental Diseases).

the blood-vessels, and that the nerve changes are secondary. Indeed, the results of their studies are so concordant throughout, that it would seem that we could (as Dana remarks) take paralysis agitans from the list of functional diseases and place it in that of organic diseases.

Ketscher further examined the nervous systems of ten old people who had never suffered from shaking palsy, and found almost identical changes with those he had discovered in paralysis agitans, save that they were less pronounced. He concludes that shaking palsy is nothing more than a pronounced senility occurring prematurely.

Two men, one forty, the other forty-five years old, and one woman, aged fifty, suffering from paralysis agitans, have come under my care recently. In all three of them I noted the unmistakable signs of senility, and desire to record a clinical symptom which may have some weight in supporting the deduction which Ketscher makes from his pathological investigations of the disease. Moreover, the symptom, from a clinical standpoint alone, is, I believe, of considerable diagnostic significance. All three of my patients spoke of having rather suddenly become aged. They had lost their vim, vigor and enterprise. This symptom of aging had been noticed and remarked upon by friends of these patients. It was both objective and subjective.

In two of my cases, the disease is yet in its early stages, the tremor being confined to a single hand. Both presented the "bread crumbling" position of the hand; in one the *facies* were rather suggestive. But the attitude, voice and symptom of festination were absent. It is in cases such as these that this early symptom of aging will be of diagnostic value. The fully developed disease is so characteristic that it may be most easily recognized even apart from the symptom of senility.

None of the recent text-books speak of this sudden aging as an early symptom of the disease. Only the piping voice and the general appearances of senility in the fully formed disease are spoken of.

How constantly this symptom of sudden aging may be observed in the early stages of paralysis agitans will, of course, require many more observations than the few I have made to determine. I trust they will be forthcoming.

Clinical Department.

A CASE OF DYSPHAGIA WITH DILATATION OF THE ŒSOPHAGUS, AND PNEUMATOSIS.[1]

BY GUSTAV LIEBMAN, M.D.

Miss S. S., fifteen years of age, had been always well until the catamenia set in two years ago, when she flowed excessively during eight days; after a pause of three weeks the menorrhagia commenced once more and lasted another week. There have been no signs of a menstrual flow since. While having had some dyspeptic symptoms before that time, no difficulty in deglutition was known to the young patient; but this made its appearance coincidently with the cessation of the metrorrhagic flow. As in most of these cases the patient at first met with difficulty in swallowing solids; soon she had the same trouble with semi-solids; and after the lapse of a few months she was only able to swallow fluids, and with great difficulty at that. A few weeks after the appearance of the dysphagia our patient acquired the habit of sucking air into the œsophagus, in order, I think, to force the liquid food down into the stomach. The air would enter with a rumbling noise; and this very rumbling, which she located, as she does still, over the whole length of the sternum, was, as it is still, a source of great distress and no end of complaint. The act of swallowing became more and more difficult; she sucked greater quantities of air, until the whole abdomen would swell up like a balloon, producing a distressing feeling of bloating and oppression. This sense of oppression would last until some of the gas was expelled through the cardia or by rectum. The liquids having hardly reached the stomach — or what the patient thought to be the stomach — vomiting would set in; and of a cupful of malted milk but a very small portion would be retained. The child was treated for some time in the Massachusetts General Hospital, where she improved somewhat under a diet of peptonized milk taken per os, and milk and eggs given through the feeding-tube; but she grew worse after having been at home but a few days.

The clinical picture has remained unchanged ever since with the exception of a short period of improvement, to be mentioned later on. The patient lost flesh to the point of emaciation, and was most of the time unable to leave her bed. Sleep was poor; the bowels constipated; and the vomiting occurred no matter whether the patient *drank* her liquids or had them put into her stomach by means of the tube. This was the condition when I first saw the patient, October 30, 1892. The following *status presens* appeared then:

A young girl, fifteen years of age, of anxious expression, intelligent, four feet and seven inches in length, emaciated. The integuments are dry and sallow, not elastic. The urine is of 1,015 specific gravity; no albumen; no sugar. The heart, lungs and bronchial tubes are healthy. The gastric region and abdomen are enormously distended — drum-like; and the stomach and colon sounds not to be differentiated upon percussion. Meteorism extends to the symphisis pubis on the one hand, and to eight right and left intercostal spaces on the other. Liver dulness is abolished, but discernible further up in the middle axillary line, between eighth and ninth ribs. There is vomiting after the taking of any kind of food. Of the three cupfuls of food (consisting of milk and egg) put in the stomach through the tube, one cupful stays. There is at present a continuous swallowing of air, even when no food is taken. When fluids are taken there is considerable effort to press them down, but there is no pain. Instead of the first deglutition murmur (*Durchspritzgeräusch*) there is a pharyngeal sound transmitted along the whole œsophagus. After a few seconds there is a second sound, though this cannot be heard at all times.

I ordered the patient to drink a glass of water; she succeeded in taking from forty to fifty cubic centimetres. This was regurgitated in less than five minutes; and upon introducing a stomach-tube to a distance of sixty centimetres, but a few drachms of water escaped through it. There was no obstacle to the entering of the tube through the cardiac orifice. Washing out the stomach followed this procedure; washings clear and limpid. Patient dwelt with a great deal of volubility

[1] Read before the Suffolk District Medical Society, October 18, 1893.

upon her suffering from the "rumbling," rolling gases in her throat and along the œsophagus. Ordered daily irrigations of stomach, and bromide of strontium.

November 2d. Patient swallowed some tea and milk, also some beef-tea (bovox), and vomited about all some five minutes afterwards. This specimen was not changed at all in appearance. Reaction was neutral; there was neither peptone, propeptone, dextrine nor sugar.

Three days afterward I obtained a specimen through the tube, the examination of which showed the following:

Reaction, acid.
Acidity = 30%, that is, it takes 30 c.cm. of normal one-tenth soda solution to neutralize 100 c.cm. of gastric juice.
Hydrochloric acid, —
Lab (rennet), +
Erythrodextrine, —
Syotonin, +
Peptone, propeptone, —

November 8th. Direct faradism by Dr. Gertrude Van Pelt.

December 18th. Has had no irrigations for over a month, but two internal faradizations twice a week. Some little improvement. Acting upon my earnest solicitation, patient succeeded in stopping the air-sucking; and in order to confirm this more fully, feeding through the *tube* only was ordered.

December 23d. Patient feeling better in every respect. Abdomen softer and small; stools freer. Sleeps sounder. Vomiting has stopped.

February 2d. Still better. Tympanites in gastric region gone, also in abdomen, but still present over left false ribs. Stomach contents, acid; but hydrochloric acid still lacking.

March 10th. Things do not look so well; more meteorism and some vomiting; although patient is able to sit up occasionally. Ordered her to resume direct faradism, that had of late been neglected. So far I had been loath to blow up the stomach with air, deeming it a cruel procedure under the circumstances; but I did it to-day, the distension being still very much less than two months ago. Lower border of stomach was found two finger-breadths below umbilicus. I also blew up the lower part of the œsophagus; while doing so, I found increased tympanites on left front and side, but indistinctly so on back (both sides of vertebræ).

April 6th. Prognosis unfavorable, although the swallowing seems to be easier. Direct faradism insisted on.

CONCLUSIONS.

We have then to deal with

(*a*) A very distressing case of dysphagia.

(*b*) A fusiform dilatation, to a slight degree, of the œsophagus.

(*c*) Pneumatosis — an aggravated distention of the stomach with air (drum disease).

As regards the dysphagia, it would appear that its first occurrence was synchronous with the two first and only efforts of nature at menstruation, and that the great loss of blood might have had considerable to do with it.

My reasons for supposing a fusiform dilatation of the œsophagus are:

(1) The vomiting or regurgitation of unchanged liquid food, of neutral reaction, if *swallowed* by the patient, and not put down into the stomach with the feeding-tube.

(2) The great distance to which the stomach-tube had to be introduced — almost its entire length — to reach the cardia and the fluids contained beyond. While the distance from the incisors to the cardia in *adults* is estimated at forty centimetres, that in the case of our child-patient is far in excess of that figure. This strange fact can only be explained by the suggestion of a distention of the œsophagus and the consequent formation of a semicircle by the tube in gliding over the distended wall. That the dilatation is of the spindle-shaped variety I infer from the fact that there is no accumulation of fluids in the lower œsophagus to be met and discharged through the searching-tube, as would be the case in the sacculated variety; and from the fact that I was able to blow a considerable amount of air into the œsophagus before the patient made complaint about it, and that the resonance in both the back and front increased thereby — in front I must admit much more so than in back on both sides of the vertebræ.

From the text-books we learn very little about those dysphagias not depending on *anatomical* stenosis. As their probable causes, may be mentioned:

(1) Spastic contractions of the œsophagus (œsophagism) due to hysteria.

(2) Paralysis of œsophagus (Ziemssen), or fatty degeneration of its muscular layer (Bartholow).

(3) A lack of reflex relaxation (opening) of the cardia during the act of deglutition (Meltzer, Einhorn).

(4) Spastic contraction of the cardia.

Œsophagism I eliminate because there is absolutely no obstacle to the insertion of an instrument within the œsophagus, and because the general mental habitus of the patient is not that of an hysterical person. There is much volubility of tongue, to be sure; but what a sufferer the poor girl is! Moreover, there is neither hyperæsthesia, paræsthesia nor hemianæsthesia. Paralysis we must exclude, as no infectious disease like diphtheria had preceded the dysphagia. Nor is there anything like a bulbar affection of the larynx or pharynx. A fatty degeneration of the muscular layers is not impossible, but cannot be proved. The theory of a spastic contraction of the cardia would best explain the origin of the pneumatosis, inasmuch as the spasm of the cardia (and eventually the pylorus) would naturally cause retention of gas within the stomach. But we must exclude also this explanation, because there is no resistance to the stomach-tube within the cardia, and because of the ease with which the act of vomiting takes place.

There would then remain, as the only possible explanation of the dysphagia and the resulting dilatation, a lack in the reflex relaxation of the cardia during the act of swallowing. Einhorn says: "Meltzer has shown that with every act of swallowing the cardia opens by way of reflex-action. Supposing that the centre or the circuit of this reflex-action is in any way disturbed so that the cardia does not relax during swallowing, there will necessarily result a slight difficulty in transferring the food from the œsophagus into the stomach."

That, in our case, the great loss of blood at such a tender age might have affected the nerve centres in general, and the one presiding over the reflex opening of the cardia in particular, is a probability with which, as a causal factor of the dysphagia, we have to reckon. The pneumatosis (the filling and distention of the stomach with gas) is without doubt due to the

sucking of air on the part of the patient. This proposition is borne out by the improvement following the use of direct faradization, the abstention from swallowing air, and the feeding of the young girl with the feeding-tube only. To this mode of feeding, doing away with deglutition, the largest share of the temporary improvement was due. Still some of the good result may be ascribed to the tonic effect of the intragastric current upon the vagus as well as to its moral influence exerted upon the will-power of our patient.

May 5, 1893. Although deglutition is still much improved (forty c. c. of milk swallowed by patient and vomited five minutes later were changed in appearance, curdled and of acid reaction, a proof that the milk had reached the stomach) and although the pneumatosis is much less conspicuous, the patient is worse and extremely emaciated. There is bronchial breathing and delayed expiration, but no cough or expectoration.

July 11th and 12th. Great pain in left front, making the administration of one-twentieth of a grain of morphine necessary.

July 15th. Death.

DISCUSSION.

DR. VAN PELT: I had the pleasure of seeing this very remarkable case. I never saw anything like it before. In a few moments as I watched it, the stomach became so distended with air as to look like an enormous tumor. One could easily hear the air rushing in.

DR. F. C. SHATTUCK: If I am not mistaken, the patient whose remarkable case Dr. Liebman reports was under my care twice at the Massachusetts General Hospital. The first time was for only a few days after a change of service. Some weeks later she re-entered and I did my best to help her. There was then no vomiting and the constant complaint was that she could not swallow, although she swallowed air in large amounts and the largest-sized stomach-tube encountered no resistance. She was an undeveloped girl, and weighed only fifty-six pounds. Under feeding through the stomach-tube and by the rectum she gained seven or eight pounds in a few weeks and improved decidedly in appearance. She then began to vomit, and I could do nothing further with her by moral or other treatment. I regarded her as hysterical. Last winter I saw her at her home at her father's request. She was in a pitiable condition, emaciated to the last degree, with the lips drawn tightly over the teeth, and a belly distended to the last degree with air. The case seems to me to be one of those rare instances of fatal hysteria, the dilatation of the stomach and œsophagus being purely secondary to over-distension from the air which she swallowed.

REMOVAL OF FOUR INCHES OF THE RECTUM FOR CANCER: ANASTOMOSIS BY MEANS OF THE MURPHY BUTTON.[1]

BY H. O. MARCY, M.D.

W. S., aged forty-six, merchant. In good health until the early part of the summer of 1893. First noticed a slight tenesmus and pain at stool, with a little bloody mucus, some time in June. Was first seen by me in July. Quite two inches above the anal aperture, upon the anterior wall of the rectum, was a well-defined mass of infiltrated tissue, of irregular ovate shape, an inch or more in its longer diameter, the upper border of which was reached by the finger with considerable difficulty. The diagnosis appeared all too evident, but its location rendered surgical interference seemingly unwarranted.

[1] Reported at the Surgical Section of the Suffolk District Medical Society, November 1, 1893.

Upon my return to the city in the early part of September, I found that the growth had been so rapid that the entire circumference of the rectum was invaded, and much suffering was experienced on account of the stenosis. Blood in considerable quantity was daily lost; and it seemed a plain duty at once to advise colotomy. He accordingly entered the hospital on the 12th of September, left inguinal colotomy being performed the same day. He was discharged the 26th, much improved, free from pain, but still losing daily a considerable quantity of blood.

Notwithstanding various measures were tried to control the hæmorrhage, it gradually increased to such an extent that danger to life from this cause alone seemed immediate and imminent. He was readmitted to the hospital on the 17th of October and a modified Kraske operation was undertaken for the removal of the diseased portion of the rectum. To this end an incision was made posteriorly, commencing about an inch from the anal outlet and carried upward on the median line upon the sacrum. The coccyx and two-fifths of the sacrum were removed, allowing room to dissect the rectum from its attachment, dividing posteriorly the meso-rectum and entering at once into the peritoneal cavity. In this way sufficient length of the bowel was brought down for easy manipulation. The rectum was now divided two inches above the anus, and the constricting diseased portion split open upon its posterior border, for the double purpose of ascertaining the limitation of the disease, and to aid thereby the careful separation of the bowel from its anterior attachments, which to the base of the bladder were everywhere pronounced. The rectum was then divided above the growth, the disease having invaded about four inches of the bowel. Quite a number of vessels were divided in the section, but they were easily secured. During the summer, I had profited by the experiences and instruction of Dr. Murphy, of Chicago, in the use of his anastomosis button. These were reinforced by my own experimental studies upon animals. I had been indebted to Dr. H. O. Walker, of Detroit, only a few days previous to the operation, for the suggestion that the button might be used advantageously in the restoration of the continuity of the rectum, although it had never been applied for this purpose. The ends of the larger-sized button were adjusted in the divided extremities of the bowel and compressed. Owing to the thickness of the rectal wall (the muscular coat of the upper portion being markedly hypertrophied) I reinforced the parts with a continuous suture. I closed, also, the opening into the peritoneum of the pelvic floor with a continuous suture, in order to prevent the prolapse of the small intestine which had appeared in the wound, as well as to cut off the peritoneal cavity from possible subsequent infection. The posterior wall of the bowel was re-attached to the divided tissues, and a large part of the wound was closed by several lines of buried sutures. An iodoform-gauze drain was inserted and the dressing applied.

Convalescence was rapid and uneventful, the temperature scarcely reaching 100°. The button was removed the twelfth day with a little difficulty, not having freed itself quite entirely from its attachment; but its removal was hastened, because pressure of the button upon the neck of the bladder caused discomfort and some difficulty in urination. There is a fistulous opening posteriorly at the site of the union of the

bowel connected with the yet unclosed wound. The only ill effect noticed from the necessarily free opening of the sacral canal has been a marked hyperæsthesia of the cutaneous surfaces for a considerable distance above and upon either side of the wound. The patient has improved rapidly in his general condition and in restoration of color, and has been sitting up and walking about his room for a week. He was discharged from the hospital November 5th, the twentieth day after the operation.

It will be interesting to note the subsequent history of the patient, the cicatricial closure of the wound with the patency of the bowel maintained, and the possible return of the disease. So far as I am able to determine, the disease was limited to the intestine, and no enlarged glands were found.



A POSSIBLE CASE OF MATERNAL IMPRESSION.

BY JOHN LOVETT MORSE, M.D.

WILLIE M., three and one-half years of age, was born at full term after a normal labor. About the middle of her pregnancy, his mother was very much shocked at seeing a relative who, unbeknown to her, had had both legs amputated after an accident. All her other children have been well formed and there is no history of such malformation in the family. The constrictions involve bones as well as superficial structures. The use of the limbs is, however, perfectly normal. The case seems suggestive, at least, of maternal impression.

A BAD FAMILY RECORD.

BY O. T. HOWE, M.D., LAWRENCE, MASS.

A YOUNG lady, sixteen years of age, came to me recently for hæmorrhage from the lungs, and gave the following family history:

Her grandfather, Mr. D., died when middle-aged of phthisis. He left six children. Mary Eliza died when three years of age, Alice and Katie when twenty, and Mark (her father) when thirty-two, all of consumption. Another daughter, Margaret, is now sick with the same disease. The grandfather had one brother, who died when middle-aged (cause not known), and left eleven children. Of these, five have already died from, or are now in, consumption, and one is subject to hæmoptysis. Of these twelve cases I have known personally quite a number. They were fine, healthy subjects and one (Mark) an athlete. Almost all these cases developed after the children had left home, and when they were not exposed to any contact with the disease.

Medical Progress.

RECENT PROGRESS IN LARYNGOLOGY.

BY A. COOLIDGE, JR., M.D.

PACHYDERMIA OF THE LARYNX.

McBRIDE[1] gives a very good description of this rather rare condition, so rare that until the illness of the Emperor Frederick of Germany it attracted little attention. At that time Virchow described symmetrical elongated swellings of oval shape, found in the region of the vocal processes. In association with these swellings the epithelium of the vocal cords is generally found thickened, and sometimes a very marked development of epithelium is found in the interarytenoid region. Later, Frænkel described the swellings on the vocal processes, often showing in their centre a pit or hollow, and often of a whitish-rose or red color. The microscope shows great thickening of the epithelium, horny changes in the outer cells and multiplication of papillæ. Sometimes the swelling appears upon one vocal process only, and a corresponding pit or depression is seen on the opposite cord. Another position in which pachydermia may occur is in the interarytenoid space, the position which, as is well known, is frequently the seat of incipient tubercular infiltration. Several cases have now been collected from different authorities, describing these tumors in both of these situations. Many of those in the latter position occurred in tubercular subjects, and should consequently be classified as phthisical pachydermia, as distinguished from idiopathic pachydermia. The difference in diagnosis between these two conditions is thus made by McBride: In the idiopathic variety the swelling rises gradually without any very definite margin so far as shape goes, although the color is distinctly defined, being of a whitish-gray with just a tinge of pink. The outline is smooth or finely granular, with sometimes a furrow or cliff. In the interarytenoid

[1] Edinburgh Medical Journal, April, 1893.

tumor of phthisis, on the other hand, the swelling is distinctly a tumor with more or less defined margin. The color is usually pink or red and the outline may be smooth or coarsely papillary. The posterior wall of the larynx seems to enjoy special immunity from neoplasms, consequently any distinct swelling in this position is rightly considered as suspicious of tuberculosis. The microscopic structure of benign pachydermia is almost identical with that due to phthisis; the latter is by far the most common. The author reports five cases, two situated in the interarytenoid space, two upon the vocal processes, and one upon the anterior third of both cords.

THE FREQUENCY OF TUBERCULAR AFFECTIONS OF THE LARYNX.

Although containing but little that is new, the conclusions of Kidd[2] being based upon the post-mortem material of the London Hospital, are interesting and instructive. The hospital records show that tubercular disease of the larynx is found in at least fifty per cent. of all patients dying of chronic pulmonary tuberculosis. On the other hand, in only about twenty per cent. is the presence of laryngeal tuberculosis found during life. This discrepancy in the clinical and pathological statistics depends mostly upon the fact that the larynx is frequently not affected until late. Both sexes are equally liable to the disease, and the greatest number of cases is found among young adults. There is good reason for believing that in the immense majority of cases the larynx is infected by the pulmonary sputum, but a few cases of undoubted primary tuberculosis of the larynx have been reported. The lesion may be either an infiltration or an ulceration; the infiltration may be either diffuse or circumscribed. The former is by far the commoner, consisting of aggregations of miliary tubercle, or of widespread cellular growths. In exceptional cases masses of considerable size project into the cavity of the larynx. On the vocal cords ulceration is the most constant lesion, although this condition is generally preceded by a localized infiltration. In some cases there is found a circumscribed or diffused infiltration of the cords, which assume a semi-transparent, fleshy, thickened appearance. In advanced stages the cord may become completely effaced by ulceration. On the posterior wall of the larynx submucous infiltration and swelling is very common, though ulceration generally co-exists. The thickening of these parts may attain to great dimensions. Next in order of frequency come lesions of the epiglottis, consisting commonly of shallow, multiple, roundish ulcers, or of diffuse tubercular infiltration. Ulceration generally attacks first the laryngeal surface. Extensive destruction of the epiglottis, sometimes erroneously considered to be pathognomic of syphilis, is occasionally the result of tuberculosis. The ventricular bands are less liable to affection, the other parts of the larynx even more rarely. The author found the vocal cords affected in sixty-eight per cent. of the cases of laryngeal tuberculosis; the posterior wall in sixty-one per cent., the epiglottis in twenty-seven per cent., and the ventricular bands in twenty five per cent. Of the cartilages the arytenoids are particularly prone to become affected by extension of the process of the parts around them, though the other cartilages occasionally become necrosed. Some degree of repair is by no means infrequent in the floor and edges of the ulcers, but healing is rarely more than partial or temporary. An actively secreting and extending ulcer may spontaneously transform into a granulating pinkish surface. In the rare cases of spontaneous healing the amount of cicatrization is slight.

[2] Medical Press, February 1st.

DIPHTHERIA AND OTHER MEMBRANOUS AFFECTIONS OF THE THROAT.

During the past year much practical advance has been made in the early recognition of diphtheria by ascertaining the presence of the Klebs-Lœffler bacillus in the throat. In some cities the local boards of health have already completed arrangements by which cultures from suspected cases may be made for purposes of diagnosis. The practical application of this work, especially at the Boston City Hospital, forms the subject of an interesting and concise paper by Dr. F. H. Williams.[3]

The Klebs-Lœffler bacillus is often found with other organisms, chiefly various forms of cocci. These latter may be found in the throat without the bacillus, and associated with appearances that often cannot be distinguished from those accompanying the bacillus except by the aid of a microscope. These cases are often designated as pseudo-diphtheria. In connection with other infectious diseases, notably scarlet fever, measles and typhoid fever, membranous throats are found. Of these some are associated with the bacillus of diphtheria, others are not. The proportion of fatal cases in which the Klebs-Lœffler bacillus is found, is much greater than in cases in which it is not found. In some cases the bacillus was found without, or before, the appearance of a false membrane, a fact which adds to the importance of early bacteriological examination. Cultures are not always infallible for some reason, such as the presence of a small amount of corrosive sublimate in which the bacillus will not grow when planted and therefore must be sought in the original specimen. But with all the sources of error, we now have at our disposal a method of diagnosis better than anything we have ever had before.

In the discussion of Dr. Williams's paper, Dr. W. T. Councilman describes the pathological anatomy of diphtheria and other pseudo-membranous inflammations of the throat. In conclusion, he says that of late considerable attention has been given to the pseudo-diphtheritic or diphtheroid affections of the throat, that is, other inflammations of the throat in which the appearances similate a pseudo membrane. Too frequently a sort of white deposit and discoloration in the pharynx is regarded as a membrane. The membrane found in the membranous inflammation is perfectly distinct anatomically, it is always tense and firm, and is made up of fibrin and degenerated cells. In the diphtheroid inflammations we may have masses of detritus consisting of cast-off epithelium, mucous and masses of bacteria collected on the surface of the mucous membrane and frequently extending into the follicles. This can be easily told from the membrane because on touching it with the needle, the needle sinks into it and it can be removed, not as a membrane, but as a more or less granular mass. Sometimes these deposits are accompanied by considerable swelling, irritation and other evidences of inflammation, and when removed, there may be, here and there, a very slight fibrinous inflammation beneath them. It is not

[3] Read before the Massachusetts Medical Journal, June 14, 1893.

uncommon to have a high fever and considerable constitutional disturbance in these cases, but the condition runs its course in a few days and is attended with little danger.

HAY FEVER.

Under the title of "Periodical Hyperæsthetic Rhinitis," including hay fever, rose cold, rag-weed fever and similar disorders, Sajous [4] gives his recent conclusions concerning the etiology and treatment of this disease, which differ in some respects from those previously given by the same author. The symptoms he believes to be the sudden cessation of the inhibitory functions of the nerve-centres, presiding over the physiological processes of the upper respiratory track. The most marked symptom of this nervous disturbance is hyperæsthesia, and there is a liability of the nasal mucous membrane to become unduly influenced by certain irritants, which irritants differ in different subjects. For a more detailed account of the nervous conditions and the appearance of asthma, we must refer to the original article. As regards the different results obtained from local treatment and cauterization of the nasal mucous membrane, they are ascribed to the great variations existing in the systemic and local conditions, capable of giving rise to the central adynamia. Of all local applications he prefers glacial acetic acid, and has obtained much better and more lasting effects than by the use of the galvano-cautery. The mucous membrane at varying times, after local treatment has been applied to it, tends to return to its former hyperæsthetic condition, and consequently renewed cauterizations, in connection with treatment directed to the central nervous adynamia, are the most satisfactory methods of treating the conditions, with hope of ultimately restoring both to their normal functions. In this way, also, the element of habit, a not unimportant feature of these cases, is eliminated. He condemns the advice given by some authors, to avoid local measures after the annual paroxysm has begun. Many cases are benefited by beginning within the month preceding the attack, or even during the attack. Some cases are permanently cured, some more, some less benefited. As palliative treatment, he suggests contracting the nasal mucous membrane by a solution of cocaine, applied by the physician, once every other day, and maintaining the effect by means of a ten-per-cent. solution of menthol in almond oil, preferably to mineral oils, and by the internal use of atropia, one two-hundredth of a grain every four hours the first day, then every six hours.

THE SURGERY OF THE FRONTAL SINUSES.

Collier [5] describes empyema of these cavities and an operation for opening them. Distension causes the walls to yield in their weakest spot, which is generally through the roof of the orbit, more rarely anteriorly. Where the opening into the nasal cavity is not occluded, pus may make its escape periodically through the nostril. The etiology is often undefined and cannot be associated with any corresponding disease in the nose. Headache at the root of the nose is a common symptom, often more annoying from its persistency than from its intensity. It is often more marked in the recumbent position and on waking from sleep. Dull and rainy weather often increases the headache, also bending forward and stooping, but high altitudes and dry atmosphere decreases it. The diagnosis is often difficult, unless pus is found issuing from the opening of the passage into the nose. To open the frontal sinus, except where there is bulging in the orbit, the author shaves the eyebrows and opens in the exact spot of the middle line on a level with the upper margin of the orbit. An incision is made commencing at the root of the nose, and carried upward about two inches. A hole, three-quarters of an inch in diameter, is trephined, care being taken not to lacerate the lining membrane of the sinus. Some difficulty is found in removing the button as a whole, on account of the bony ridge dividing the sinuses. The diseased sinus is then opened by a scalpel and scissors, any secretion or polypus removed, and an opening is made into the nose, a drainage-tube inserted and maintained in position. The pericranial aponeurosis as well as the skin is separately and accurately sutured. By this method the author obtains healing of the wound by first intention, an insignificant scar and an avoidance of the danger of a fistula. In cases characterized by protrusion and lateral displacement of the eyeball, an incision parallel to the eyebrow at the most prominent part of the swelling, is made, and in this case also, communication of the nose is established.

THE INFLUENCE OF WEATHER ON TONSILLITIS.

Lennox Browne [6] in criticising some recent opinions on this subject, concludes from his hospital records that the epidemic wave of acute tonsillitis is greatest when the first rainfalls, after a lengthened period of dry weather, being but slight, are sufficient to stimulate to activity the dry and comparatively inert organic matter, and it only passes away with the thorough flushing of the sewers after heavier rain. Although dust plays a part in the production of throat diseases, long-continued drought and heat only become seriously noxious factors on occurrence of a change.

THE FREQUENCY OF LYMPHOID HYPERTROPHIES IN CHILDREN.

This subject has, up to this time, not received the amount of attention which its importance deserves. An attempt, on a small scale, to ascertain the condition of the upper air-passages in the throats of children who were supposed to be healthy has been made by Vinton,[7] who finds that out of 550 children, in the New York public schools, only 20 per cent. can be classed as normal; 60 per cent. had more or less adenoid vegetation; 20 per cent. enlarged tonsils, and 12 per cent. had both combined. Fuller statistics of this kind will be valuable in determining the advisability of operating for these hypertrophies in the absence of any symptoms due to their presence.

NASAL POLYPUS.

Marmaduke Sheild [8] describes the common gelatinous polypus of the nose and its proper treatment. While containing nothing new, the paper states clearly the modern method of treating this disease, which is often not sufficiently understood by the general practitioner. The polypi are mostly composed of loose connective-tissue distended with mucin and covered with ciliated epithelium. They are also most always multiple, and swell up in damp weather. In the majority of cases they spring from the mucous membrane, covering the

[4] University Medical Journal, September.
[5] British Laryngological Association, December 11, 1892.
[6] Journal of Laryngology, August.
[7] Medical Record, June 17th.
[8] Clinical Journal, August 2d.

outer wall of the nose, either over the middle turbinate or the mucous membrane of the outer wall under it, rarely from one of the accessory cavities. For their diagnosis and treatment, a speculum and a good light are required. It is important to remove all of the growths, which is best done by means of a cold-wire snare, previously bathing the parts with cocaine. It is important to detect and destroy the very small growths, for it is the continued growth of these which leads to such rapid reproduction of the disease. After they have been removed, the mucous membrane, in the situations of the former growths, should be destroyed with a cautery or caustic.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

C. L. SCUDDER, M.D., SECRETARY.

REGULAR Meeting, Wednesday, November 1, 1893, DR. ABNER POST in the chair.

DR. GEORGE L. WALTON read a paper on

REDUCTION OF CERVICAL DISLOCATION: A SUCCESSFUL CASE.[1]

DR. H. H. A. BEACH: Dr. Walton has certainly given the subject a most careful investigation. I wish to express my indebtedness to him also for suggesting the method of reduction to which a successful result is due. I do not think that one can appreciate the ease with which such a reduction can be accomplished without seeing it. There is as much difference between the method employed and the ordinary way by extension and counter-extension, which I have commonly used and seen employed in the treatment of spinal cases, as there is between the old way of reducing hip-joint dislocation by the pulleys and that by flexion and rotation. Dr. Walton has cleared up the haze and uncertainty enveloping the directions for reduction prescribed in standard text-books, by his explanation of the mechanism of the articulation and by demonstrating conclusively how and for what purpose the force employed should be applied. An interesting point suggested by my experience in the treatment of this case is the importance of the ligamenta-sub-flava as an obstruction to reduction. Under the complete relaxation afforded by ether, the deformity persisted; eliminating, so far as one case could supply evidence, the muscles as a factor in maintaining the deformity of dislocation. This estimate of the muscles as an opposing force in reduction is strengthened by Dr. Walton's experiments with Dr. Richardson on the cadaver, the muscles having been removed from the neck before producing dislocation.

If the muscles are excluded as the factor in maintaining dislocation, what is there to explain the condition? Only the ligaments are left, as Dr. Walton has stated. Of these it seems to me that we may eliminate those that connect the skull with the atlas, the atlas with the axis, and the latter with the third vertebra, in view of the fact that fractures or dislocations there are inevitably followed by rapidly fatal results. The supra-spinous, the inter-spinous and the inter-transverse ligaments may be excluded, as being imperfectly or barely represented in the cervical portion of the vertebral column, leaving only the anterior common ligament and the posterior common ligament as directly connecting the bodies, and the capsular ligament surrounding the articular processes, the latter permitting the greatest amount of mobility and need not be considered in the matter of reduction. Last of all let us recall the origin and insertion of the ligamenta-subflava, a strong and tough structure composed of yellow elastic tissue, connecting the laminæ of the vertebra above with its fellow, below, and extending from the root of the articulating process of each side to the point where the laminæ converge to form the spinous process. It is rational in the consideration of luxation to admit the importance of so powerful a ligament, which by its close attachment to the roots of the articulating processes holds them firmly together. I must confess that no other explanation so satisfactorily accounts for the firmly locked vertebræ in their misplaced position, even after the patient is etherized; or for the elastic resistance experienced by the operator during the tension necessary for lifting the superior articulating process enough to permit its rotation to the normal position.

In short, the method provides a carefully planned manœuvre, executed without doing violence to the ligamentous structure, and well calculated to lift the articulating process of a dislocated vertebra by leverage about one-third of an inch, after a considerable resistance is perceptible, and by a slight rotation, remedy a dangerous lesion. Even with fracture I should think that if it were done carefully there would be no impropriety in an attempt at reduction.

DR. M. H. RICHARDSON: The work that Dr. Walton has done in this subject is, I think, of great value. Even if this method was tried early in the sixties none of us have been familiar enough with it to apply the principles. Cases of dislocation of the neck are certainly not infrequent. They are certainly as frequent as dislocations of the hip. The results are quite as serious as dislocations of the hip, even where the cord is not pressed upon. In the experiments which were made at the Medical School, as I remember them, I was convinced that the trouble with the former methods of extension and counter-extension was in traction upon the wrong ligament. In the old method of traction on the hip with extension and counter-extension, you pulled on the ligament and had to rupture it. I think the same thing is true in these unilateral dislocations, and for that matter in bilateral dislocations. Certain ligaments were put upon the stretch, and that is one reason why in dislocations there is impaired mobility. The ligament is put upon the stretch, and to reduce it by extension or counter-extension you must tear that ligament in two, whereas if you understand exactly the way in which the bones are locked together, by this manipulation the ligament is relaxed which keeps the bone in position, and the thing is lifted into place with the greatest ease. I believe also that the muscles have a good deal to do in keeping this dislocation unreduced. When the muscles have all been removed, as in the dissecting-room, it is very hard to keep that dislocation unreduced of itself. Of course, the force which produces the dislocation tears the ligaments which bind the bones together in normal position, and to reduce that dislocation these ligaments do not stand in the way. That is the reason why by proper manipulation, by going through reversely the same course by which

[1] See page 553 of the Journal.

the bones got out of place these ligaments do not stand in the way. Even under ether there is always a contraction of the muscles which keep the bones in that dislocated position; and I believe that whatever force is necessary is in overcoming that muscular contraction, and not in any opposition offered by the ligamentous structures. I have seen the method of counter-extension tried. I think that must be Dr. Warren's case that Dr. Walton referred to. I was not aware of any spontaneous reduction. Two or three of us were at one end of this man, and two or three at the other. We pulled as hard as we could, and it produced no effect whatever. This man was discharged, and sent to Tewksbury to die. I think he had pressure on the cord. I saw him some months or years afterwards running an elevator in Jordan & Marsh's. I do not think there was any reduction of the dislocation. He held his head in the same peculiar position afterwards as before. It certainly seems to be our duty in cases of dislocation without pressure on the cord, and in fact even with pressure on the cord, to go through these manipulations. If any one has a clear understanding of the lesion, I do not believe there is danger of doing harm. If you do not understand the condition of the two bones, you will be increasing the amount of displacement and encroaching upon the spinal canal sufficiently to press the cord. I feel very much indebted personally to Dr. Walton for his paper.

DR. G. L. WALTON: The suggestion of Dr. Beach's I think is a very valuable one regarding the ligamenta-sub-flava, and explains what seems rather difficult to explain without bringing into consideration a ligament which is elastic. It is a point that had not occurred to me at all. Dr. Beach and Dr. Richardson have given me a great deal of credit, but both have aided me much in reference to the anatomy of the parts and their relations, and I have to thank Dr. Beach for allowing me to publish this case. I think a great deal of credit is due to the surgeon who has the courage to attempt the reduction of these dislocations. In reference to the case Dr. Richardson has alluded to, I suppose this is the one which Dr. Warren asked me to see and from which my study of this subject dated. This man's head was bent backwards so that the face was pointed upwards, both articular processes having slipped forward. There was such pressure on the cord that he had a spastic gait, clonus, and exaggerated reflexes and numbness up to the chest. He got steadily worse and was finally unable to get about. He was sent to the Convalescents' Home, I think. While there they were giving him a warm bath and pouring cold water down his back at the same time. He experienced a shock like an electric shock and the bones slipped into place, excepting that the head was held somewhat stiffly afterwards; but it was not in the original position. He certainly could not have recovered the use of his limbs unless there had been a reduction.

DR. RICHARDSON: We are not speaking of the same case. The man to whom I alluded did not hold his head up as Dr. Walton has described.

DR. BEACH: I am not quite sure that Dr. Walton referred to Ashhurst's table of twenty-nine cases, which furnish an additional argument for a trial in any case. There were twenty-nine cases altogether, twenty-one of which were successful. Extension was employed in fifteen of the successful cases. Of the eight fatal cases one only had extension.

DR. WALTON: I mentioned the cases, but did not mention that fact.

DR. FRED B. LUND read a paper entitled

A STUDY OF TENDON SUTURE: A FEW CASES OF INTEREST.

DR. RICHARDSON: This subject seems to be one of the greatest interest to surgeons generally and to the general practitioner. I think some of the members may remember the celebrated suit for malpractice many years ago, in which a physician near Lowell was sued for malpractice for not sewing together the tendons. That was long before the antiseptic days and before any tendon suturing could have been performed with much chance of success, an operation depending so much upon aseptic methods. In this case it was contended by those physicians who were willing to testify against their brother practitioner that the tendons ought to have been sutured. All the tendons in the wrist were cut. In the accident-room the house-surgeons are constantly called upon to make this suture, and, as Dr. Lund says, there is no more important thing. Men come in with clean-cut wounds; are practically disabled; the usefulness of the hand is very much impaired. I had considerable experience in tendon suture at first when we were called upon to see these hands; and one of the most successful of the early cases was one that occurred when Dr. Edward Reynolds was house-officer. The woman was leaning on the handle of a bread-knife, the hand slipped and the tendons of the palm were cut off. I sutured the flexors (superficial and deep) of the palm of two fingers and a half. The result was very gratifying. The repair of tendons where is loss of substance is interesting. In all secondary sutures the contractions of the flexor bellies or the muscular bellies cause a wide separation, and in some instances the tendon is destroyed by the accident. A day or two ago, I had a case in which a young man had one of the flexors cut, with the median nerve and one or two muscles. I split the tendon and turned down. The great difficulty in that was caused by the same cause that we have of difficulty in suturing, that is, that the parallel fibres of the tendon are very easily separated, and you cannot get any longitudinal pull except by some such method as described, but this made a very satisfactory lengthening of the tendon, although no force could be applied at the point where the reflection was made. I have always used silk and I suppose that is one of the best methods of suturing. I have had considerable experience with this, and there is nothing so satisfactory as a clean tendon suture, and I do not know of any subject of more practical importance than this. Take this young man, who was practically disabled without a tendon suture; the physician where this happened merely brought the wound together, and the whole palm and the wrist was a mass of cicatricial tissue, and in the midst of the cicatrix were the ends of the median nerve. I referred this case to Dr. Walton for study. He advised immediate liberation of the nerve, and we made suture of the nerve and of the tendon. I feel very much encouraged in the prognosis from what Dr. Lund has said. I should not expect any return of sensation for a long time. I think that every one ought to be familiar with these methods of suture, especially in general practice in manufacturing towns.

In the case just mentioned there is motion in the fingers, but I think it is done by the interossei. An-

other thing that occurred to me is that a good deal of the motion in the hand in the successful cases must be aided very materially by the great development of the interossei. You can get very good extension of the interossei, of course aided by the lumbricales. The operation referred to was done only Saturday.

DR. H. O. MARCY: It is a pleasure to listen to such an exhaustive and carefully-written paper upon a subject of much importance. The coaptation of the divided, separated ends of a tendon is often difficult, because the transfixing suture tends to split the parallel fibres held together only by the cement substance, and will permit of very little tension. I have advised the following method as possessing advantages over any which has come to my knowledge: The divided ends having been brought into view, with a fine tendon suture — for this purpose much to be preferred to silk or catgut — fix the side of the retracted tendon with a loop knot, at a little distance from its division. Then insert the needle into the opposite end of the tendon at right angles to its long axis, and when the ends of the tendon have been approximated, fixing the suture by a half-reef knot. This is repeated one or more times as may be deemed desirable. A continuous fixation suture thus applied with a fine, round needle, minimizes the damage to the tendon, holds it securely in its grasp; and when impossible to make complete coaptation, it serves as a ladder to bridge the gap with material of identical histological structure. It remains also unchanged for a much longer time than catgut.

CANCER OF THE UTERUS.

DR. M. H. RICHARDSON: This uterus I removed yesterday from a comparatively young woman for marked cervical disease. She had been suffering for some months with the usual symptoms of cancer. Early this summer I curetted and cauterized the mass with great care, preparatory to an extirpation of the uterus. She was so much improved by this operation that she returned home, and did not present herself for the more radical operation until two days ago. There was an extensive ulceration of the cervix, with thickening. No metastases could be discovered.

The patient was prepared for a combined abdominal and vaginal hysterectomy. After making the vaginal cut, the uterus was found to be so movable that I finished the operation by that route. The whole operation took ten minutes. The broad ligaments were easily, and apparently securely, tied. Great care was taken not to infect the abdominal cavity, and the parts were irrigated and cleansed most thoroughly after the operation. She rallied from the ether well.

During the afternoon and evening she showed signs of internal hæmorrhage. The pulse gradually rose to 120. In my absence, Dr. Scudder was called. Before he got there the pulse had risen to 160, and there was a subnormal temperature. He removed the packing and found a continuous ooze from the left side. The lower abdomen was freed of blood clot and fresh packing put in high up above the wound into the abdomen. No vessel of any size could be found and no ligature could be applied.[2]

This — the chief danger in a hysterectomy by the vaginal route — has never happened before in my experience. At the close of the operation the wound was perfectly dry, the ligatures were tight, and the case looked as promising as any that I have ever had. In a few hours, in spite of all the care that had been taken, the patient passed from a condition of comparative safety to one of the utmost danger.

In the past four weeks I have removed the uterus, for various causes, six times. In every case I selected the abdominal route. All the cases were septic — either from ulcerating cancer or from a sloughing fibroid. The dissection was carried on — the patient being in the Trendelenberg posture — with the greatest ease. The floor of the pelvis was covered, after the removal of the uterus, by sewing the peritoneum together with a continuous Lembert stitch. All recovered without complications.

It seems to me that, on the whole, the abdominal route is preferable in most cases of hysterectomy.

This specimen shows the great limitations of this procedure in cancer. The disease has been removed by a very narrow margin — a margin that would seem utterly inadequate in cancer of the lip or cancer of the breast. In spite of the advanced stage of this disease, there was no evidence of infiltration in the broad ligaments.

DR. MARCY exhibited a cancerous uterus of extraordinary size removed by vaginal hysterectomy. The specimen possessed additional interest because of the enlargement of the right Fallopian tube, which was distended with a dark-colored fluid, and where it presented in the wound resembled a loop of small intestine. The removal had been effected with the unopened tube still attached to the uterus.

TUMOR OF THE PAROTID.

DR. RICHARDSON: This specimen shows macroscopically the characteristic appearances of the more common parotid tumor — myxochondroma. Clinically, the case presented features of great interest. The patient, Mrs. T., a woman fifty-four years of age, had had for about two years a swelling in the left parotid region. There had been no pain, except an occasional pressure symptom in parts remote from the tumor. The general health had been very good. The tumor presented itself below the left ear, at the lower angle of the parotid. From this point it extended inwards, half filling the pharynx. She was sent to me with the diagnosis of cancer, and the case was supposed to be inoperable. The irregularity and hardness of the mass suggested strongly to my mind a cartilaginous tumor; but the more I examined it, the more uncertain seemed both the diagnosis and the possibility of its removal.

This morning, under ether, I cut down upon the mass, and found it — to all appearances — an enchondroma. It was distinctly encapsulated, and extended behind the angle of the jaw well into the pharynx, pressing upon the tonsil. It was attached superiorly to the pterygoid plates of the sphenoid; posteriorly it pressed upon the styloid process. The mass was enucleated without difficulty, and with very little hæmorrhage. Great care was taken not to injure the facial nerve, though I had told her that, on the chances, it would be impossible to avoid total facial paralysis. The facial nerve was exposed during this operation, and held one side, and apparently is uninjured. The tumor itself was friable, and came to pieces in its enucleation. In parts it is distinctly cartilaginous; other portions suggest a myxomatous condition.

Dr. Councilman, on seeing the tumor, without knowing its origin or history, at once pronounced it a

[2] The patient has made an excellent recovery (four weeks after the operation), and is about to be discharged from the hospital.

myxochondroma of the parotid. This opinion has been verified by microscopic examination.

DR. MARCY: Dr. Richardson's cases are of much interest. I would like to ask him, or any member of the Society, the explanation of the very high temperature which occurred in a case recently operated upon. An enormous pus-tube was everywhere adherent — to bladder, intestine and pelvic walls. It probably contained nearly a quart of very offensive pus, and unfortunately broke on removal. The utmost care was exercised in cleansing the pelvic basin, and a packing of iodoform gauze was applied. Soon after being placed in bed the temperature was 102°+, and it rose steadily to 108°+ before her death, which occurred in thirty hours. The pulse was small and frequent; little pain; mind clear and active to the last. The autopsy, as might have been expected, showed no evidence of peritonitis. Time for septic poisoning by germ development was wanting. Why the remarkable elevation of temperature?

Dr. Marcy also reported a case of

REMOVAL OF FOUR INCHES OF THE RECTUM FOR CANCER: ANASTOMOSIS BY MEANS OF THE MURPHY BUTTON.[2]

THE NEW YORK ACADEMY OF MEDICINE. SECTION ON GENERAL MEDICINE.

STATED MEETING, November 21, 1893, CHARLES E. QUIMBY, M.D., chairman.

DISCUSSION ON THERAPEUTIC INSTABILITY, ILLUSTRATED BY PNEUMONIA AND TYPHOID FEVER, WITH SPECIAL REFERENCE TO DIETETICS AND SPECIFICS, CARDIAC AND GENERAL STIMULANTS, AND ANTIPYRETICS.

The discussion was opened by DR. WM. L. STOWELL, who read a paper entitled,

STATEMENTS IN LEADING WORKS ON MEDICINE OF THE PAST TWENTY-FIVE YEARS.

DR. WM. H. DRAPER said he did not think the changes in treatment described in the paper just read were really as great as one at first sight might suppose. If we were to crystallize the various opinions expressed by the different authors referred to, we should find that while the means employed were numerous, the principles involved were very few. Instability was, perhaps, rather an opprobious term; yet it would certainly have been very unfortunate if there had been stability in the matter of therapeutics, since instability represented progress.

As regards pneumonia and typhoid fever, it was doubtless within the recollection of many of those present that pneumonia was considered a purely inflammatory disease; so that the older practitioners treated it by bleeding, purging and sweating. In the same way typhoid fever was looked upon as an affection in which the intestinal lesion was really the important and essential feature, and it was therefore treated with remedies intended to exorcise the disease from this part. The great revolution in therapeutics which had come about within his recollection, was based on a study of the pathology of the disorders in question. This determined the fact that both pneumonia and typhoid were essential fevers of limited duration which ran their course in a definite period. Therefore, they were now treated symptomatically. While it was true that we could not abort or "cure" them, their whole treatment was revolutionized. He did not mean to say that during all this time many so-called specifics had not been brought forward and tried. The great revolution in the treatment, however, was due to the knowledge that had been acquired of the natural history of these diseases, rather than to any essential specific method of dealing with them. He believed that they were treated much more successfully than was the case thirty years ago, simply for the reason that they were now allowed to run their course without any damaging interference on the part of the medical attendant.

He did not think that in our time we should meet with any specific for either pneumonia or typhoid fever. The researches of scientific men in regard to the germ theory up to the present time did not offer any such hope. If we even did succeed in finding a specific treatment, it would doubtless be based on bacteriology, but thus far no agent for destroying the disease germs had been discovered which would not also destroy the life of the patient if employed in such a way as to accomplish the former result.

In regard to the matter of dietetics, no special changes had come about within the last four years. The revolution in this field had taken place before his time, in the days of Graus and Stokes. When the former expressed the desire that the words "He fed fevers" should be inscribed upon his tomb-stone, he struck a note which at once resounded throughout the civilized world, and everywhere met with a warm response. It seemed to him, however, that for a number of years after the time of these great men the pendulum had swung too far in the other direction. Murchison was, therefore, correct in stating that fever patients were, as a rule, overfed. In our desire to sustain the strength, we frequently give more nourishment than could be assimilated. The introduction of milk as a food in fevers was a great improvement on the old beef-tea diet. As Flint said, beef-tea was perfectly worthless, except to supply the system with fluid. It was a well-ascertained fact that albumen was not well digested by fever patients. It was not best, therefore, that we should give them albuminoids to any extent. He felt sure that every one present had at times observed difficulty in the digestion of milk, on account of the albumen which it contained. In the febrile condition it was utterly useless to attempt to give any amount of albuminous food. Fatty matters, cream and the sugar of milk, with sufficient water, were much more satisfactory. One of the greatest improvements that had been made of late years had been the establishment of milk laboratories in New York and Boston, for which we were indebted to Dr. Rotch, of the latter city. From these could be obtained for infants and invalids milk with a diminished percentage of albuminoids, the preparation of the milk being varied in different cans according to the prescription of the physician. During the continuance of the fever we could not expect to nourish the albuminous tissues.

Dr. Draper went on to say that there was another point in regard to which his experience did not show any very great variability. When he entered Bellevue Hospital, enormous quantities of alcohol was given to fever patients, although one, at least, of the attending physicians, the late Professor McCready, did

[2] See page 561 of the Journal.

not sanction this practice, always protesting that it was "a great waste of good whiskey." At this time it was very common to administer from a pint to a pint and a half of this stimulant in the twenty-four hours to those suffering from typhoid and typhus fever, particularly the latter. As with the matter of feeding, so he believed that there was over-stimulation in those days. Murchison laid down some very good rules in regard to the use of alcohol in fevers, but he did not think they were any better than those of Stokes, which he had always found admirable in practice. So long as alcohol diminished the frequency and improved the force of the pulse, so long as it rendered the tongue less parched and dry, so long as it diminished subsultus and delirium, there could be no question that it was doing the patient good. But when it seemed to increase the frequency of the pulse, to render the tongue dry, and to increase cerebral excitement, it was causing mischief. This mischief was explained by the fact that an excessive quantity of stimulus was being given; the alcohol circulating in the blood as alcohol, and not being consumed. There was always an active controversy going on as to whether alcohol was a food or merely a stimulant; but when we found that a patient was taking a pint of whiskey in the twenty-four hours, and yet no odor of it whatever was perceptible in his breath, it certainly looked to him as if the alcohol must be consumed, or at all events gotten rid of very quickly by the system. It was either split up and consumed, or else was eliminated by the kidneys and skin with such rapidity that it did not intoxicate the individual.

DR. A. A. SMITH said that he wanted to have more hope than his friend, Dr. Draper, in regard to the successful treatment of pneumonia and typhoid fever. He had passed from the time in his very early practice when he learned that there was those who believed that the course of these diseases could be shortened. Now we knew that this was impossible. At the same time, he believed that the time would come when we would be able to shorten them, though not by destroying the germs giving rise to them. Recent investigations founded on Koch's discovery of tuberculin, (although the latter, used in the way in which it was had proved a dismal failure,) seemed to indicate this. His memory or experience did not go back as far as Dr. Draper's; but of all the remedies which were in use when he commenced to practise, twenty-two years ago, alcohol was the one, *par excellence*, which had held its own. At the time to which he referred, it was given unstintedly from the beginning to the end, and its administration was largely a question of how much of it the patient could hold. At Bellevue Hospital, as at the period mentioned by Dr. Draper, alcohol was used as the standard treatment. More recently there had been a change in this respect, and he would venture to say that, while it was perhaps given in as many cases at the present time, it was prescribed in much smaller quantities than formerly. From his personal observation, therefore, he would place it first among tonics and stimulants.

The second place in this respect he would give to opium, and particularly in the treatment of pneumonia. He placed it among tonics and stimulants because he believed that was where it truly belonged. If it were an agent acting alone upon the heart, it could hardly be classed among them; but if we regarded it from the standpoint of its action on both the nervous system and the heart, opium would be found to hold an important place as a tonic and stimulant. Especially was it valuable in pneumonia if there was much pleurisy present, with considerable pain and a great deal of disturbance of the nervous system, and if the cough was troublesome. It gave the patient an opportunity to oxygenate his blood. It should not, however, be used in too large quantities or for too long a time.

As to quinine, when he was an interne at Bellevue Hospital he was instructed by the visiting physician to give, as a rule, from sixty to eighty grains a day to patients suffering from pneumonia, and was taught that it acted as a heart tonic and nervous stimulant, sustaining the patient, reducing temperature a time, and shortening the disease. In many cases he believed that these large quantities of quinine did shorten the disease, though it was only by shortening the patient's life. Of course, a large number of the patients recovered, but he had no doubt that it was in spite of, and not on account of, the good effect of the remedy. He would venture to say that no one at the present time would think of giving eighty grains of quinine a day in a case of lobar pneumonia to-day. In small doses, however, (say from six to eight grains a day,) it was an efficient tonic and stimulant, and still held a useful place in our armamentarium.

Ammonia. — Twenty-two years ago the preparations of ammonia occupied a prominent place in the treatment of pneumonia. Following the lead of Richardson, who claimed that they lessened the coagulability of the blood, our medical men gave carbonate and muriate of ammonia freely to every patient. Whether they did good or not, he was impressed with the fact that these agents almost invariably produced disturbances in digestion. At the present day they were not used nearly so much as formerly. There was one preparation of ammonia, however, which was not open to the same objection, and which often acted very well, namely, the aromatic spirits.

Digitalis. — Digitalis was not so much used as formerly. It held its place well for a number of years, and then lost ground. At the present time, however, it seemed to be again gaining in favor. Personally, he employed it more than he did twelve years ago, but not to as great an extent as he did twenty years ago. As to convallaria, it had flashed out brilliantly for a short time; but its day had gone by. Strophanthus was not equal to digitalis as a tonic and stimulant, but was still used by many practitioners. There was a doubt in a good many minds, however, whether either strophanthus or digitalis was ever called for in typhoid fever or pneumonia.

Strychnia. — This was one of the best, if not *the* best, heart and nerve tonic on our list of drugs. Twenty years ago it was scarcely used at all; but it now occupied a very prominent position. Along with strychnia there was another agent which deservedly held a very high place. Glonoin had of late grown in favor in the treatment of pneumonia. There was much diversity of opinion in regard to it, and it was exciting a considerable amount of discussion; but it seemed to him destined to hold its place.

Baths. — It was only within a few years that baths had become so popular in this city and country, and he thought that they properly came under the classification of tonics and stimulants. He was glad to agree with those who were enthusiastic as to their efficacy, and believed that where they were employed the ordi-

nary tonics and stimulants were not nearly so much called for as otherwise.

The ethers and camphor had not held their own at all, although ether might occasionally be used with good effect in an emergency. If oxygen was classed among the tonics and stimulants, it was only because it acted in the capacity of these in an indirect way. Twenty years ago it was much employed. Then it fell into disuse, and now again was gaining in favor.

DR. ALFRED L. LOOMIS was to have treated of the subject of Antipyretics, but was prevented by illness from attending the meeting.

DR. GEORGE L. PEABODY spoke on the

ACCEPTED TEACHINGS OF TO-DAY.

In regard to pneumonia, he said he thought that we had entirely a matter of intelligent, expectant and symptomatic treatment. There was no routine treatment that could be applied to any considerable number of cases, because the cases varied so greatly in character. For the treatment of the cough in some patients, inhalation of chloroform in small quantities was found beneficial. Five or six drops were enough for this purpose, in a wide-necked bottle covered with cotton. By this means the reflex irritability of the pharynx was not infrequently relieved. Inhalations of the hot vapor of water were also valuable in alleviating cough and loosening and promoting the discharge of matters from the upper air-passages. While some patients were greatly annoyed by coughing, others obtained relief only by this means.

Pain often called for treatment. In the minds of many practitioners, however, there was a bitter prejudice against the use of opium and its alkaloids in pneumonia. This, no doubt, had its basis in the old idea that these agents depress the respiratory centres and were therefore contraindicated. He knew of one very prominent physician, of large hospital and private experience, who was especially outspoken in opposition to the use of opium in any form and would not prescribe even the one-sixteenth of a grain of the drug in a cough mixture. Personally, however, he believed that we were amply justified in giving one-sixth of a grain of morphia subcutaneously, as circumstances required, provided the patient was carefully watched. Occasionally, the pleuritic pain was readily relieved by external applications of heat or cold. Both heat and cold seemed to act equally well in this respect, and this was, no doubt, because they both produced very much the same effect locally.

For the relief of insomnia we frequently had to resort to the use of hypnotics, and here he preferred the use of such agents as sulphonal to opiates.

Dyspnœa, if not due to involvement of a very large amount of lung tissue, but to venous congestion, could often be successfully relieved by the temporary withdrawal of blood from the parts by means of ligatures placed upon both the upper and lower extremities. These could be allowed to remain with perfect safety for from an hour to an hour and a half. Of course, if the urgent symptoms were due to very extreme involvement of lung parenchyma, such ligatures were of little or no value. Under these circumstances came in the efficacy of oxygen; but except such a condition were present, he did not think the use of this agent was called for.

Stimulants alone were often of great service. Among these caffeine ranked high, but it was important that we should have a reliable preparation of the drug. Most of the citrates of caffeine sold were worthless, and he therefore advised that caffeine itself should be used. It was true that caffeine was insoluble in water, but it was readily soluble with citric acid, and under the circumstances it was best for the physician to make his own solution.

In croupous pneumonia, hyperpyrexia should be treated exactly as in typhoid fever, namely, by means of cold baths after the Brandt method. With a temperature of from 103° to 105° it was perfectly satisfactory to put the patient in a bath of 65° every three hours, if necessary, and frictions to the body could be more thoroughly applied in pneumonia than in typhoid fever, for the reason that in the former it was not necessary to spare the abdomen. Sponging was of much less value. The use of antipyretic drugs he believed to be absolutely unjustifiable in pneumonia, that is, if given for the purpose of reducing the temperature. It was true that in a strong, robust patient such agents as phenacetine might occasionally be used with advantage; but they should never be given in antipyretic doses. In this disease it was important that the heart should be sustained in every possible way, and it should be urged that the patient be kept constantly in a recumbent position.

The food should be simple and nutritious, and nothing was better than some form of milk, predigested or fermented. As regards stimulants, alcohol was better than anything else. Digitalis, while inferior to alcohol, was still a serviceable agent, and it was a matter of some importance to know that we now had a perfectly reliable preparation of that drug in digitalin. The dosimetric method of medication, recently introduced from France, was now used to some extent in our hospitals. It was the practice to administer one one-hundred-twentieth of a grain of aconitin, one sixty-fourth of a grain of digitalin, and one one-hundred-thirtieth of a gram of arseniate of strychnia every hour, as long as the pulse remained above 100. When he commenced the use of this treatment he felt convinced that his pneumonia patients were materially benefited by the remedies employed, but more recently he had been so frequently disappointed in the results obtained, that he did not now employ the dosimetric system as much as before.

As to drugs in the treatment of typhoid fever, the modern teaching was practically this, the fewer the better. The systematic cold bath, as prescribed by Brandt, he believed to be rapidly superseding all other methods of treatment, and in his opinion it was worth more than all the other means employed in the last twenty years. He wished to say, however, that he did not think the matter of intestinal antisepsis as yet a finished chapter, but still hoped that something would come of it. Of course, we could not expect to destroy the germs in the intestines and elsewhere, but whether it might not be possible to antagonize the septic alkaloids resulting from them was still an open question. Some time ago he had treated quite an extensive series of typhoid fever cases by means of beta-naphthol and resorcin, and the results seemed so satisfactory that he was inclined to believe that an important advance had been made; but when he came to compare his results with those of other physicians who had not employed either of these agents, he found that they were equally satisfactory, and he was therefore forced to the conclusion that the success noted was due, not

to the remedies employed, but to the comparatively mild character of the disease prevailing at that time.

DR. SIMON BARUCH said that the stability of a remedy must be judged by the length of time in which it had been in use. He found that some of the remedies which had been most highly commended by the speakers this evening were mentioned by Hippocrates. These were the hygienic remedies, dietetics and baths. In fact, they were the only ones thus commended which were to be found in the writings of Hippocrates.

Recent Literature.

The Meaning and the Method of Life: A Search for Religion in Biology. By GEORGE M. GOULD, M.D. New York: G. P. Putnam's Sons. 1893.

"One of the saddest things in man is his willingness to be ignorant and incurious of the mystery that he is, and by which he is surrounded. . . . All things are divisible into living and lifeless things. To identify matter and the living intelligence shown in every cell and organism by any system of theology or materialism is to do violence to logic."

These extracts from the introduction suggest the lines of thought into which Dr. Gould leads the reader. Dr. Gould is a thorough physiologist, too thorough, we suspect, to be readily followed by non-medical philosophers; and he is certainly too thorough a metaphysician to be easily followed by most medical men. In spite of this the book is fascinating, and will be especially so to those whose religious belief, or whose atheism does not force them to disagree with the reasoning from the start. The key-note of the method and meaning of life lies in a God who is not omnipotent, whose manifestation appears in life, and whose implement is the living cell. Belief in an omnipotent and absolutely good God leaves, to many minds, much unexplained in science and in religion. Dr. Gould's Biologos, or God working through the cell, shows unbounded goodness and love and beauty. He encourages every thing good and combats every thing bad. Badness, when it occurs, is contrary to his wish, but beyond his control. He has no power over matter except indirectly through his living structures.

It is impossible for us to enter deeper into the book without being urged on still farther. We recommend it to our readers with the belief that they will find much in it worthy of thought.

Hand-Book of Public Health and Demography. By EDWARD F. WILLOUGHBY, M.D. London and New York: Macmillan & Co. 1893.

Solomon's often-quoted aphorism, "Of making many books there is no end," applies with unusual aptness to the numerous works upon public hygiene which have been published within the past two years. This recent work by Dr. Willoughy, is one of the better books of its class, and in its main points constitutes a trustworthy and valuable hand-book. The author's classification is as follows: The health of man, embracing dietetrics, clothing and personal hygiene, habits, exercise and rest; the health of the house, including air, warmth, light, ventilation and general sanitary arrangements; the health of the city, including water-supply, disposal of refuse and excreta, river pollution, and disposal of the dead; the health of the people, treating of preventable diseases, school hygiene and health of the workshops; demography; meteorology. An appendix is added, containing a digest of English health laws, with the metric system and other useful tables.

The author's classification is worthy of careful study, and suggests the fact that the present system in use by English-speaking physicians generally, has outgrown its usefulness and should be revised to conform to the progressive teachings of medical science.

The chapter upon demography is especially clear and concise, and will be found very helpful.

Treatment of Sterility in the Woman. By DR. DE SINETY. Translated by E. P. HURD, M.D. Detroit: George S. Davis. 1893.

This number of the "Physicians' Leisure Library" gives to the profession De Sinety's well-known treatise on sterility. It is a very satisfactory presentation of the subject, and gives all the well-recognized causes of sterility and their treatment. In spite of the numerous causes which are undoubtedly operative in this condition, the fact remains that there are many cases where no cause can be found. There is no question that in time we shall know more about these obscure cases, and it was hoped that Dr. Sinety might throw some light upon them, but he fails to do so.

The book is interesting and instructive reading.

Zur Lehre Vom Luftwechsel. Von DR. GUSTAF WOLFFHÜGEL, Professor and Director des hygienischen Instituts an der Universität Göttingen. Munich, 1893.

Professor Wolffhügel very justly dedicates this monograph of seventy-five pages to Pettenkofer, upon the occasion of the latter's recent jubilee, and takes occasion to say in the opening chapter that Pettenkofer's work upon ventilation, for many years out of print, leaves but little to be said upon the subject.

The principal chapters are devoted to the problem and the object of ventilation, the examination of the air of inhabited apartments and the calculation of the air-supply. The book is especially rich in its quotations from the best modern authorities upon ventilation.

Outlines of Practical Hygiene, adapted to American Conditions. By C. GILMAN CURRIER, M.D. Pp. 468. New York: E. B. Treat. 1893.

In this excellent treatise the author states that his "dominating principle has been to maintain a judicial attitude in every detail, allowing no scope for vagaries. Accepted truths alone are incorporated in its chapters." The book is devoted to the principles of public, and of personal, hygiene, and the author shows himself to be thoroughly conversant with foreign as well as American literature upon the subject.

The illustrations are mostly new and well selected, and the book may be commended as a safe and ready hand-book for the health-officer, the general practitioner and for all persons who desire concise and well-expressed information upon this subject.

A Manual of Diseases of the Ear. By GEORGE P. FIELD, M.R.C.S. Fourth edition. Philadelphia: Lea Brothers & Co. 1893.

Mr. Field's fourth and enlarged edition comprises three hundred and seventy-one pages; nineteen colored plates, chiefly views of the external auditory canal and of the membrana tympani and middle ear, as seen through a speculum; sixty-seven wood-cuts in the

text; and a double index of authors and of subjects. The book is intended as a reference hand-book for the practitioner, and devotes but forty-one pages to the consideration of the anatomy and physiology of the ear, the remaining chapters being in the form of clinical lectures, with quotations of illustrative cases occurring in the author's practice. To the subject of osseous tumors of the external auditory canal, a chapter of twenty-seven pages is devoted, with a tabulated record of operative results; and twenty pages are given to diseases of the auricle. The chapters on acute and chronic non-suppurative disease of the middle ear include sixty-six pages, and those on suppurative disease and its results, eighty-one pages. The mention of operative procedures in this connection, especially of the mastoid operation, except as they occur in the report of cases, are very short. The chapter on the value of pain as a symptom of ear disease, is both readable and suggestive. The remaining chapters, on diseases of the internal ear, include a *résumé* of the author's observations on the use of pilocarpine.

The Mastoid Operation. By SAMUEL ELLSWORTH ALLEN, M.D. Cincinnati: Robert Clarke & Co. 1892.

This book of one hundred and eleven pages is an excellent review of the subject of mastoid operations as defined by Schwartze, to whom the author gives this credit in his preface. The first part, comprising twenty-nine pages, is historical, beginning with the first recorded operation by Johannes Riolanus in 1649, and terminating with the latest contribution of Stacke in his method of opening the mastoid antrum. The anatomical portion, comprising twenty-five pages, is illustrated by five good plates of section of the temporal bone and is clear and direct in its descriptive text. The remainder of the book gives the pathology of the subject very briefly, and the method of operation, as taught by Schwartze, more at length; and this is followed by a description of the operation of Stacke. The work is to be commended for the spirit in which it was undertaken and for its value as a careful record of observations.

Text-book of Normal Histology. By GEORGE A. PIERSOL, M.D., Professor of Anatomy in the University of Pennsylvania. 8vo, pp. xviii, 439. Philadelphia: J. B. Lippincott Co. 1893.

This beautifully printed and illustrated volume deserves a cordial welcome, as a very valuable compendium of histology, which is so well done, except in regard to the accounts of the course of the renal tubules and of the uterus, that there is little opportunity for unfavorable comment. It ought at once to take its place as the accepted standard manual of the subject. It is pervaded by that freshness, which is won only by those authors who have a first hand mastery of the subject. The great pains taken by the author is especially evidenced by the numerous and very accurate figures, with which the pages are crowded. These figures preserve well the natural appearance of the preparations, and will, therefore, be far more useful than the crude illustrations, which have marred many of the best English text-books, to perplex and discourage students and others. In an appendix there is given a judiciously selected collection of the most useful methods.

We can thoroughly recommend Dr. Piersol's treatise and hope it will have a large sale.

An Elementary Text-Book of Biology. By J. R. AINSWORTH DAVIS. Two volumes, 12mo. Part I, Vegetable Morphology and Physiology, one volume, pp. 287. Part II, Animal Morphology and Physiology, pp. 405. London: Charles Griffin & Co., Lim't. 1893.

This excellent work describes, with a view to laboratory study, a series of typical plants and animals, following the method of practical instruction which has done so much to elevate biology as an educational discipline. The selection of types is good, the descriptions are clear, and there is a good deal of general information included; so that a student who had worked carefully through the two volumes would possess the foundations of a general knowledge of biology. The illustrations and press-work also deserve praise. It is an objection to the manual that too much space is devoted to the lower types. The work is especially designed for college classes.

Heath's Practical Anatomy; A Manual of Dissections. Eighth edition. Edited by WILLIAM ANDERSON, F.R.C.S. With 329 engravings on wood. Philadelphia: P. Blakiston, Son & Co. 1893.

Mr. William Anderson has given another proof of his merit as an anatomist by his excellent editing of this well-known work. He has improved it by taking out as well as by adding, and yet the physiognomy of the book remains the same. The omission of histology, which was not only antiquated but out of place in such a work, is something to be thankful for. Excellent diagrams have been introduced, and frozen sections are coming into favor. T. D.

Der Bau des Menschen als Zeugniss für seine Vergangenheit. [*The Structure of Man as Witness of his Past.*] Von DR. R. WIEDERSHEIM, Prof. an der Universität Freiburg. Zweite umgearbeitete und stark vermehrte Auflage. Mit 190 Figuren in Text. Freiburg und Leipzig: J. C. B. Mohr. 1893.

This second edition of a remarkable publication is considerably larger than the first, and has many illustrations. Its merits and defects are of the same nature as in the former edition, which was well characterized by a distinguished anatomist as "exhaustive but not critical." Every part of the body is in turn called upon to show its normal structure, its embryology and its variations, its close resemblance and analogies to corresponding parts throughout the animal kingdom. As a monument of anatomical learning the work deserves the highest praise. It is to be strongly commended to every anatomist as a most useful book of reference. Philosophically the work leaves something to be desired. It proves clearly enough the essentially animal nature of man's *body*, but then no one nowadays questions this, and to harp on it too long is

> "Thrice to conquer all one's foes,
> And thrice to slay the slain."

But when it comes to understanding why or how certain anomalies appear in man we are left in the lurch. The author appears to be satisfied to prove that these are normal in certain animals. This is hardly satisfactory if some of these animals are on side lines and can by no possibility have been in the line of descent. It seems more and more necessary to invoke some as yet unknown law to account for what may be called cross-relationships. In other words there are phenomena not to be explained by heredity. T. D.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, DECEMBER 7, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

THE TWENTY-FOURTH ANNUAL REPORT OF THE MASSACHUSETTS STATE BOARD OF HEALTH FOR THE YEAR 1892.

THE successive reports of our State Board of Health mark a progressively increasing interest in matters of public health which is most satisfactory in its results. Weekly returns from sixty per cent. of the population of the State are now received at the State House, reporting causes of death, temperature-variations, etc., for each locality; and seventy-three local boards of health, representing seventy per cent. of the population, report annually cases of illness and deaths, and record all sanitary needs and improvements. In 1892, the ratio of deaths to reported cases was from diphtheria, 29.24; scarlet fever, 4.60; typhoid fever, 22.99. In 1891, the mortality was, respectively, 23.5, 3.34, 19.05, as compared with 23.7, 5.8, 20.8, in England for that year. By recent law, all cases of diseases dangerous to the public health must be reported to the State Board of Health by the local boards within twenty-four hours of their receiving notice of them.

Boston records the lowest mortality from typhoid fever of any large city in this country, 2.9 per 10,000 inhabitants, as compared with 17.4 in 1846, before the introduction of a public water-supply, and an average of 3.2 from 1890 to 1892 inclusive, or .9 less than the average from 1885 to 1889. This low average for the last three years the Boston Board of Health attributes to an improved water-supply and to better hygienic conditions. The Board has with commendable zeal at last established a disinfecting station, fourteen years after its importance was urged by the State Board. Its inspection of cattle for slaughter and for export, and its sanitary control of dairies and cow stables have been perfected during the year.

In Bridgewater, scarlet fever became epidemic, and for a while beyond control, by infection through cases so mild as not to be recognized. In Brookline, the local board was petitioned to abate a local prevalence of intermittent fever.

In general, local epidemics of typhoid fever were attributed to bad drinking-water or imperfect drainage, and many polluted wells were condemned; great complaint is made of methods of disposal of swill and garbage of varying degrees of nastiness, with general commendation of the crematory at Lowell; the need of district sanitary inspectors is emphasized; more thorough vaccination is urged; hospitals for infectious diseases are demanded.

In Waltham, an officer was employed to enforce absence of infected children from school, etc., and in East Bridgewater the local board demanded — what should be subject to general law — compensation to men kept from their work, in order to compel quarantine and care of their infected families.

There was an epidemic of fifteen cases of small-pox, with two deaths, in New Bedford, in June; and throughout the year there were four other cases in other towns. Three small outbreaks of typhus fever, from immigrants, were readily controlled. The interstate notification of diseases dangerous to the public health has given prompt information throughout the country of their appearance in any locality.

The 587 exceedingly interesting pages of the Report on Water-supply and Sewerage, under the provisions of Chapter 375 of the Acts of the Legislature of 1888, comprise 71 pages of most valuable advice to cities and towns on water-supply, sewerage and sewage disposal, and pollution of streams, with articles on examination of water-supplies, examination of rivers, summary of water-supply statistics; three papers by Prof. Thos. M. Drown, Chemist of the Board, "On Interpretation of Water Analysis." "On the Amount of Dissolved Oxygen in the Water of Ponds and Reservoirs at Different Depths in Winter, under the Ice," and "On the Mineral Contents of Some Natural Waters in Massachusetts"; two papers by Gary N. Calkins, Assistant Biologist, "A Study of Odors observed in the Drinking-Water of Massachusetts," and "Seasonal Distribution of Microscopic Organisms in Surface-Waters"; "Experiments upon the Purification of Sewage at the Lawrence Experiment Station," by Allen Hazen, Chemist in Charge; "Experiments at the Lawrence Experiment Station upon the Purification of Water by Sand Filtration," by George W. Fuller, Biologist at the Station; "Some Physical Properties of Sands and Gravels, with Special Reference to Their Use in Filtration," by Allen Hazen, Chemist in Charge; "Sewage Disposal of Cities and Towns in Massachusetts by Intermittent Filtration."

The Board concludes, from investigations of artificial ice, that artificial processes of freezing concentrate the impurities of the water in the inner core or the portion last frozen; that the impurities are least if distilled water is used; that the number of bacteria in artificial ice is insignificant, under the prevailing methods of manufacture; and that the amount of zinc found in ice is insufficient to cause injury from its use.

Under the law for food and drug inspection, 5,712 samples of food, including 3,271 of milk, were exam-

ined, of which 1,913 (of which 1,514 were milk) were found adulterated or below the standard. Of 487 samples of drugs, 312 were found of good quality. There were 136 complaints made in court, 123 convictions, and fines imposed of $3,661.70.

Five [1] detailed investigations of epidemics of typhoid fever, with the well-known thorough and scientific methods of Professor Sedgwick, the Biologist of the Board, constitute most interesting contributions to the study of that disease.

Professor Sedgwick's original bacteriological investigations, which proved so conclusive as well as novel, are already familiar to the readers of the JOURNAL.[2] In greater detail and with an excellent series of illustrations, they form the basis of the first paper. In the last, Professor Sedgwick attributes the three outbreaks to secondary infection from one person to another through uncleanly habits.

PREVENTION OF TUBERCULOSIS.

AT a meeting of the Board of Health of the City of New York held November 29th, Dr. Herman M. Biggs, Chief Inspector of Pathology, Bacteriology and Disinfection, made an important report on tuberculosis. It was supplementary to a previous report in regard to the disease submitted by him four years ago in conjunction with Drs. Prudden and H. P. Loomis; as a result of which the Board issued a circular of information and instruction for public distribution. In his present communication Dr. Biggs says: "The time, it seems to me, has arrived when it becomes the duty of all sanitary authorities to assume a more aggressive attitude towards this, the most widely purulent and fatal disease to which the human race is subject, and I desire to present to the Board certain suggestions as to definite means which should at once be taken to prevent and restrict tuberculosis." Before offering these suggestions, he points out the fact that for a number of years the deaths from tuberculosis in New York have amounted to more than five thousand annually, and makes some general observations on the nature of the disease; among which are the following:

It has been shown that many millions of tubercle bacilli may be discharged, under certain conditions, by one person suffering from pulmonary tuberculosis in the course of twenty-four hours. As tuberculosis can only result from the action of these germs, it follows that when the disease is acquired it must result from receiving into the body the living germs that have come from some other human being or animal affected with the disease. While the meat and milk of tubercular cattle may be important sources of danger, yet the disease is acquired as a rule through its communication direct from man to man; the usual mode of infection being the breathing of air in which the living germs are suspended in dust. It follows that tuberculosis, being a communicable, that is, a contagious germ disease, is distinctly preventable. The means which are most certain to prevent its spread are those of scrupulous cleanliness regarding the sputum. These means are largely within the control of the affected individual. It should be constantly kept in mind that it is the sputum, and the sputum alone, which is commonly the important agent in its transmission. It is furthermore to be remembered that consumption is not always, or even generally, as was formerly supposed, a fatal disease; but that in a very large proportion of cases, if recognized early, it is a distinctly curable affection. An individual who is well on the road to recovery may, if he does not with the greatest care destroy his sputum, diminish by self-inoculation his chances of recovery.

The recommendations made by Dr. Biggs are as follows:

(1) That there be systematically disseminated among the people by means of circulars, etc., the knowledge that any tubercular person may be a source of actual danger to his associates and his own chances of recovery diminished if the discharges from the lungs are not immediately destroyed or rendered harmless.

(2) That all public institutions, such as asylums, homes, hospitals, dispensaries, etc., be required to transmit to the Board of Health the names and addresses of all persons who are suffering from pulmonary tuberculosis.

(3) That special inspectors be assigned to duty for the investigation of this disease.

(4) That the Board urge upon hospital authorities the importance of separation, so far as possible, in the hospitals of this city, of persons suffering from pulmonary tuberculosis from those affected with other diseases.

(5) That the Department of Charities and Correction of this city be requested to set apart one of the hospitals under its charge, to be known as "The Consumptive Hospital," to be used for the exclusive treatment of this disease.

(6) That the Board undertake the bacteriological examinations of the sputum for diagnosis in every case of pulmonary disease of doubtful character in hospitals or private dwellings or tenement-houses, where the physician in attendance desires that this should be done.

(7) That all physicians practising their profession in this city be requested to notify this Board of all cases of pulmonary tuberculosis coming under their professional care.

In conclusion, Dr. Biggs says: "For the proper performance of the preliminary work, as detailed above, a special corps of medical inspectors and disinfectors

[1] On Epidemics of Typhoid Fever in the Cities of Lowell and Lawrence, with Observations upon its Existence in Other Cities of the Merrimack Valley, especially in Newburyport, by Prof. W. T. Sedgwick. On an Epidemic of Typhoid Fever in the Village of Chicopee Falls, apparently due to Infected Drinking Water, by G. V. McLauthlin, with a Prefatory Note by Prof. W. T. Sedgwick. On an Epidemic of Typhoid Fever in the City of Springfield, apparently due to Infected Milk, by Prof. W. T. Sedgwick and W. H. Chapin, M.D. On an Epidemic of Typhoid Fever in the City of Somerville, apparently due to Infected Milk, by Prof. W. T. Sedgwick. On Epidemics of Typhoid Fever in the Villages of Bondsville, Provincetown and Millville, apparently due to Secondary Infection, by Prof. W. T. Sedgwick.

[2] Vol. cxxiv, 1891, 397-402, 426-430.

should be provided, whose duties should be entirely confined to work connected with the investigation of tuberculosis, and the carrying out of the means to be taken for its prevention. It is my belief that the New York City Board of Health, which has so often achieved such notable success in the management and control of other contagious diseases, should take the lead in this matter, and adopt measures to meet this new and urgent demand upon its resources."

This report was referred to the Sanitary Committee for its consideration.

MEDICAL NOTES.

A New Medical Prize. — The Alumni Association of the College of Physicians and Surgeons of New York, offers a prize of $500 for the best essay embodying the results of original investigations upon any medical subject. Essays must be sent to the Secretary before April 23d, 1894.

Northwestern Ohio Medical Association. — The forty-seventh semi-annual meeting of the Northwestern Ohio Medical Association, will be held at Toledo, Ohio, December 14th and 15th. The banquet will be given on the second day.

Dr. Truedau's House Burned. — The house and splendidly equipped laboratory of Dr. E. L. Truedau, at his sanitarium at Saranac Lake, New York, were destroyed by fire December 4th, during Dr. Truedau's absence in New York, where he is seriously ill.

Professor Tyndall's Death. — The death of Prof. John Tyndall, which occurred at Hazelmere, England, December 4th, is said to have been hastened by an overdose of chloral.

An Anthropological Prize. — A member of the Anthropological Society of Washington, D. C., has offered two prizes — one of $150 and one of $75 — for the best essays on the subject of "The Elements that go to make up the most Useful Citizen of the United States, regardless of Occupation." The essays, to be of 3,000 words, must be sent to the Secretary of the Society by March 1, 1894.

An Honor to Dr. Jacobi. — The chair of pædiatrics in the University of Berlin, made vacant by the resignation of Professor Henoch, was offered to Dr. Abram Jacobi, of New York, who has declined the honor, preferring to remain an American citizen. This is the first time such a distinction has been offered to an American physician.

An Epidemic of Diphtheria in London. — During the last two months there has been a very large number of cases of diphtheria in London and the death-rate has been unusually high. During the week of November 18th there were 103 fatal cases, chiefly among children under five years.

A Street-Car Ambulance. — An electric ambulance car is to be tried upon the street-car system in St. Louis. The idea was suggested by the City Health Commissioner, Dr. George Homan, and as three of the large hospitals and the city dispensary are situated upon the lines of street railways, a smooth running and rapid means of transportation is expected from the new plan.

The International Medical Congress. — The International Medical Congress which was postponed from September 24th, on account of the prevalence of cholera in Italy, will be held at Rome from March 29 to April 5, 1894.

Cancer in England. — The mortality from cancer is increasing in England. In 1850 there was one death in seventy-four due to cancer; in 1860, one in sixty-two; in 1870, one in fifty-four; in 1880, one in forty; and in 1890, one in 28. There is said to be a similar increase in Scotland, Norway, Holland and Prussia, but a decrease in Ireland.

Twelfth International Medical Congress. — The Russian Government has shown much interest in the meeting place for the Twelfth International Medical Congress in 1896. It desires that Moscow be selected as the city, and promises to donate 50,000 roubles towards the expenses of the Congress.

Immigration and the Quarantine Service. — On this subject President Cleveland says in his annual message to Congress: "The Superintendent of Immigration, through the Secretary of the Treasury, reports that during the last fiscal year there arrived at our ports 440,793 immigrants. Of these, 1,063 were not permitted to land under the limits of the law, and 577 were returned to the country from which they came, by reason of their having become public charges. The total arrivals were 141,034 less than for the previous year. The Secretary in his report gives an account of the operation of the Marine-Hospital Service, and of the good work done under its supervision in preventing the entrance and spread of contagious diseases. The admonitions of the last two years touching our public health and the demonstrated danger of the introduction of contagious diseases from foreign ports, has invested the subject of national quarantine with increased interest. A more general and harmonious system than now exists, acting promptly and constantly operating by preventive means to shield our country from the invasion of disease, and at the same time having due regard to the rights and duties of local agencies, would, I believe, add greatly to the safety of our people." Certainly the work accomplished by the medical inspectors of the Marine-Hospital Service sent to the dangerous ports in Europe this last summer deserves any favorable recognition it may receive.

Abuse of Medical Charity in London. — Much discussion has taken place recently in London regarding the abuse of hospital charity by persons not in need of free medical attendance. The interest in the question has been general, both within and outside the medical profession. Mr. Herbert Spencer says that thirty per cent. of the people of London are frequenters of the hospitals and dispensaries, and that most of them are able to pay their doctors.

"THE FROG." — A correspondent of the *Lancet* writes that among the country folk of Lincolnshire, England, there occurs an infantile stomatitis which is rather common and known as "the frog," from the usual treatment, which consists of giving the child a very small frog in a muslin bag to suck.

THE FIRST MOHAMMEDAN WOMAN PHYSICIAN. — The first Mohammedan woman to practise medicine has recently been given a position under the Russian government. Her name is Miss Bibi-Radya-Koudlouiarow.

A PORTUGUESE PHYSICIAN CONVICTED. — The trial of Dr. Urbino Defreitas, one of the most prominent physicians of Oporto, for murder has just been finished. He was charged with poisoning his nephew and trying to poison his two nieces in 1890, in order that he might inherit a fortune to which they were heirs. Despite the divergence of expert opinions, Defreitas was found guilty, and was sentenced to eight years solitary confinement.

SURGERY AND THE DEMI-MONDE. — A small company of particularly select demi-mondaines, says the *Progrès Medical*, has just instituted a "Dîner des Infécondes," under the honorary presidency of a surgeon noted for the readiness with which he performs ovariotomy. This charming company of patients who have been operated upon meets for dinner each month, the surgeon presiding at the table. The novelty of this form of vicarious menstruation is truly Parisian.

A MEDICAL TRAGEDY. — An especially sad example of the dangers to which physicians are exposed is reported from Presbourg in Hungary. A physician after visiting a patient with diphtheria went home to change his clothes before continuing his calls. On entering the house his little son rushed up to him and before the father could prevent it, had jumped upon him and kissed his face. Two days later the child was taken ill and soon died of septic diphtheria. The father's reason gave way under the blow, and he died after a short illness attended by acute delirium, in which he constantly cried out, "I have killed my boy."

BOSTON AND NEW ENGLAND.

TOYS FOR THE BOSTON CITY HOSPITAL. — Owing to the large number of children at the Boston City Hospital, especially in the scarlet fever and diphtheria wards, there is an especial need of toys for the convalescents. Physicians having private patients recovering from these diseases are reminded that the books and toys which otherwise must be destroyed are very welcome at the hospital for use in the wards for infectious diseases.

FOOT-BALL ACCIDENTS. — The young man who dislocated his neck while playing foot-ball at Farmington, Conn., last month, died during the past week. This makes the fourth fatal case of broken neck from foot-ball this season.

A NEW CITY HOSPITAL FOR FITCHBURG. — The city council of Fitchburg, Mass., has voted to negotiate a loan of $100,000 for the establishment of a city hospital. Some time ago Mr. G. S. Burbank left his entire property, valued at about $400,000, to the city as residuary legatee for the founding of a free hospital. His widow, however, has been very anxious to see the work underway, and the trustees of the will have obtained consent to anticipate the legacy and borrow money for the purpose. The land purchased by the city is centrally located, covers about 400 acres, and was bought for $70,000. The rest of the money above the $70,000 will be applied to fitting up the buildings now on the estate, so that they can be used for the hospital. The present hospital accommodations of the city are a few rooms at the poor farm, which cannot be isolated from the rest of the house.

NEW YORK.

THE NEW WEST SIDE GERMAN DISPENSARY BUILDING. — The new home of the West Side German Clinic and Dispensary on West 42d Street was opened to the public on Thanksgiving Day. The institution was started twenty years ago by Drs. Lampert and Teller, and for the past fourteen years has been located on 38th Street. The cost of the new building, the whole of which is occupied by the Dispensary, has been about $50,000. It is not intended exclusively for Germans, but is open to the deserving poor of all nationalities. Special care is taken by the managers to exclude all those who are able to pay for medical treatment, and during the past year over eight hundred such cases have been turned away. The new building is fitted up with the most approved apparatus and appliances in its various departments, and in its construction throughout, special pains have been taken to prevent the lodgment of disease germs.

Miscellany.

LONG-CONTINUED RECTAL ALIMENTATION.

A CASE of successful, long-continued rectal alimentation is reported in the care of Dr. Maragliano,[1] which certainly meets the objection so often raised, that no real nourishment is obtained from rectal feeding. The patient, a woman, had a circumscribed peritonitis from perforated gastric ulcer. For ninety-four days she was kept continuously upon exclusively rectal feeding. In this time the patient lost but 2,700 grammes in weight. The diet consisted of the following enemata:

Lean beef	300 grammes
Pancreas	150 grammes
Mix well, rub up in a mortar, and strain; then add:	
Water, q. s.	
Carbonate of soda	5 grammes
Fresh ox-gall	25 grammes

This suffices for four enemata a day when diluted with a sufficient amount of tepid water.

CLIMATE OF COLORADO.

DR. C. THEODORE WILLIAMS, in an address before the Royal Meteorological Society, summarizes the chief features of the climate of Colorado as follows:

[1] Le Bulletin Médical, No. 86, 1893.

(1) Diminished barometric pressure, owing to altitude. (2) Great atmospheric dryness, especially in winter and autumn. (3) Clearness of atmosphere and absence of fog or cloud. (4) Abundant sunshine all the year round, but especially in winter and autumn. (5) Marked diathermancy of atmosphere, producing an increase in the difference between the temperature in the sun and in the shade, varying with the elevation in the proportion of one degree for every rise of two hundred and thirty-five feet. (6) Considerable air movement, even in the middle of summer, which promotes evaporation and tempers the solar heat. (7) The presence of a large amount of atmospheric electricity.

FRAGMENTATIO CORDIS.

ACCORDING to a report of Oestreich to the Society for Internal Medicine,[1] fragmentation of the heart is much more common than has been supposed, and can be recognized, not only by the microscope, but macroscopically, by a peculiar friability of the muscular substance. If the fragmentation occurs in any part of the heart more than another, it is always in the papillary muscle of the left ventricle. It is not a cadaveric process, but occurs ante-mortem, as shown by experiment upon animals and the examination immediately after death, of the hearts of criminals who had been hung. It may occur alone or with other affections. He considers it an "agony product," a mechanical breaking up of the primary muscular bundles as the result of the final cardiac efforts. Accordingly, it can in no case be considered during life as an actual disease. It was found especially frequent in cases of sudden death and chloroform poisoning. It is more frequent in old persons than in young, and was never seen in children under one year.

SOURBERBIELLE.

A RECENT number of the *Gazette des Hôpitaux* contains an interesting account of the French surgeon Sourberbielle, who was one of the best known of the jurymen who tried Marie Antoinette. He came of a medical family which boasted at least twenty physicians or surgeons. His grandmother's three husbands were all doctors, and his four uncles were practising surgeons. After receiving his preliminary training from one of these uncles, he was a pupil of Larrey and became noted for his skill in lithotomy, and was given by legacy all the instruments of Pascal Baseilhac. On the outbreak of the Revolution, Sourberbielle entered with enthusiasm into all the political turmoil. In 1789 he was made a surgeon-major of the organized "Conquerors of the Bastile."

He was on intimate terms, both professionally and personally, with Marat, Danton and Desmoulins. Later he sat in complacent judgment upon Danton, and condemned him to death with the quiet remark, "There are two men who cannot live together, Robespierre and Danton: the former is more useful to the Republic, therefore it is necessary to guillotine Danton, *c'est simple comme bonjour!*"

For Robespierre he had the greatest affection, and was for a long time his trusted adviser and physician. Unmoved by suffering and indifferent to the gentler emotions, as a rule, he never spoke of Robespierre's anguish without a shudder.

On the trial of Marie Antoinette his ardent republicanism caused him to be selected as one of the jurors. At this time, too, his cold, hard character seemed to show a little bit of humanity. He called the attention of the convention to the damp, unhealthy cell where the queen was confined as being worthy their pity. Still he voted for her death.

After the restoration, Sourberbielle was made surgeon-in-chief to the Parisian gendarmerie. He was made master-in-surgery in 1792, but did not receive his doctorate until 1813. During the Terror he was health-officer to the revolutionary prisons, and had charge of the medical service in the École de Mars. Later he was made surgeon-major to the imperial police and in the national guard.

His great renown, at this time almost European, was for his skill as a lithotomist, especially in the method *du haut appareil*. He considered lithotrity a reproach to surgery, and had constantly large classes of physicians studying under him his operation of cutting. His hand was so steady that at the age of eighty-two he still operated successfully, and to the day of his death, at the age of ninety, he took an active and polemic interest in all surgical questions.

TEMPERATURE IN GENERAL PARALYSIS OF THE INSANE.

THE statements so generally made that there is a great daily variation of temperature in general paretics have recently been put to the test of careful experiment by Drs. Peterson and Langdon, of New York.[1] Twenty-five well-marked cases of general paralysis were selected from the Hudson River State Hospital for the Insane, and in each case careful thermometric observations were made every two hours for one week. In ten of the cases additional observations were made, for the same length of time, every two to four hours, with thermometers in both axillæ, in order to determine the question of axillary asymmetry. There were a few instances of marked oscillation of temperature. The greatest single day's change was 3.8° Fahr., but the average was much less. The lowest average daily variation in the twenty-five cases was .8°, the highest 2.2°. The total average for all the cases was 1.4°. "The smallest average axillary asymmetry was .13°, the greatest .34°, but among single observations there were many instances of exact correspondence. The greatest single change in any case was 2.4°. The mean of greatest single differences was 1.17°."

They conclude from their observations that:

"(1) As regards the average bodily temperature, we find it to correspond to physiological normes. The statements of our predecessors as to hyperpyrexic or subnormal averages cannot be sustained.

"(2) The diurnal oscillations of temperature in paretics also correspond to physiological normes. The statements to be found in literature as to extraordinary daily variations being frequent in these cases are absolutely erroneous.

"(3) Asymmetrical axillary differences are so small that they cannot be considered as abnormal, and certainly not of any diagnostic significance.

[1] Deutsche Med. Woch., No. 39, 1893.

[1] Journal of Nervous and Mental Disease, November, 1893.

"(4) When unusual variations of temperature occur in general paretics, their cause must be sought for in conditions not related to the pathological phenomena of paralytic dementia, but depending upon thermogenic features unrecognized by the physician, or 'masked' by the mental state of the patient. Thus, in one case of our series, an increasing hyperpyrexia was noted during the second week's observations, but the pneumonia causing it was 'masked' until the fifth or sixth day, the patient dying on the sixth day. Again in another case where the highest single daily oscillation was 3.4° and the average daily oscillation for the week 2.2°, the patient suffered from bed-sores which undoubtedly produced some septicæmia. That variations of temperature may take place in connection with the paralytic and convulsive seizures of these cases we do not gainsay, but have made no observations under such circumstances."

LATE EPILEPSY.

THE occurrence of epilepsy for the first time in the middle and late decades of life has generally been considered of rare occurrence; and Wood even goes so far as to say that the disease occurring after the age of thirty-five is always symptomatic and not a true epilepsy. Delanef and Charcot considered that thirty years was the age, after which epilepsy should be called late; and this time has been generally accepted. Mendel, in a paper read this summer before the Congress of German Physicians, takes exceptions to the views hitherto accepted,[1] and claims that late epilepsy is not uncommon, and that so large a number of cases show signs of the disease for the first time after the age of thirty that he does not consider it right to give the name of late epilepsy until a later age. He bases his statement upon his own cases, 904 in number. Kohler, in 1887, collected 1,352 cases of epilepsy, and found that the first manifestation occurred after the age of thirty in 180 cases, or 13.3 per cent. Mendel, in his own cases, all carefully differentiated from the numerous errors of diagnosis, found that 152 cases, or 18.7 per cent. occurred after thirty. The decade from thirty to forty, especially, showed a greater number of cases; Kohler's figures giving 5.8 per cent., and Mendel's 10.9 per cent. of all cases occurring first in that period. After the age of forty there is a marked decrease in the number of cases, and this age he selects as his dividing line. The oldest patient observed was a woman of sixty-three, though cases have been reported of older persons. The greatest care should be taken in young children to eliminate the convulsive seizures of paralysis and idiocy, and in older persons, especially the epileptic attacks of cerebral syphilitic-dementia or general paralysis.

As regards sex, his figures confirmed the observations of Bennett and Gowers, that males are the more frequently affected. In 53 cases occurring after the age of forty, there were 38 men and 15 women.

The question of heredity becomes more difficult to decide the older the patient is, owing to the absence of family or friends. Still, in one-fourth of his cases, Mendel obtained a clear history of inherited disease; and he does not agree with Nothnagel and Seeligmüller, who say that a person inheriting epilepsy who remains free from the disease to the age of twenty will be free in later years. The taint may be entirely latent for sixty years, and then for the first time show itself. The predisposing causes are many, fright being a not uncommon one. In none of his cases "is syphilis given etiological place, for syphilitic epilepsy is to be distinguished from the genuine form, and can be so distinguished clinically, at least, after careful observation."

His conclusions were as follows:

(1) Cases of epilepsy occurring after the age of forty are to be considered as "late."

(2) Late epilepsy occurs absolutely and relatively more often among men than among women.

(3) Hereditary tendency plays an important part even in late epilepsy.

(4) The course of the disease is, as a rule, milder and less progressive than in youth.

(5) The intellect appears to suffer less in late epilepsy, even after long continuance, than in younger patients.

[1] Deutsch. Med. Woch., No. 45, 1893.

THERAPEUTIC NOTES.

TREATMENT OF DYSPEPSIA IN CHILDREN. — Tordens, in a discussion of the therapeutics of infantile dyspepsia and the subsequent atonic condition of the bowels, makes four divisions of treatment. (1) Elimination[1] of noxious elements by emesis, lavage (both rarely if ever called for) and catharsis. (2) Anti-fermentative medicines. Among these he includes the various combinations of pepsin, resorcin, salicylic acid. In cases of diarrhœa with markedly green stools he recommends lactic acid in small doses. The following combination he also finds useful:

R	Creosoti	2-4 drops.	
	Aquæ destil.	35.00 grammes.	
	Syr. Altheæ	15.00 grammes.	M.
Sig.	A small spoonful every two hours.		

(3) Sedatives, warm baths and light friction. For colicky pains a mixture of aqua chamomilla, subnitrate of bismuth and syrup of anise often gives relief. (4) Tonics and stimulants for the subsequent atony, of great value are

R	Tinct. Cascarillæ	10 drops.	
	Aquæ destil.	50.00 grammes.	
	Syrup	10.00 grammes.	M.
R	Ext. cort. Chinæ.	0.25 grammes.	
	Aquæ destil.	50.00 grammes.	
	Syr. Aurante.	10.00 grammes.	M.
Sig.	To be given in teaspoonful doses.		

QUININE IN MALARIA. — Sézary recommends the following method of administering quinine, where it is to be given over a continued period of time, as to patients living in a malarial district. It is said to cause no gastric disturbance.

Sulphate of quinine	3 grammes.
White wine	1 litre.
Tartaric acid enough to render the solution acid.	

EPISTAXIS.[2] — Several statements having recently been made as to the efficacy of applying ice to the external genitals in cases of epistaxis, Dr. Schrieber, of Moscow, points out[3] that in an old Russian book — published by an anonymous physician in 1827, and bearing the title, "*Rükovodstvo K, Letchenyü Boleznei Prostymi Sredstvami*" ("Hand-book of Treatment of Diseases by Simple Means"), — the application of cold to the external genitals is recommended as the best

[1] Le Bulletin Médical, 1893, No. 28.
[2] St. Louis Medical Journal, October.
[3] Novosti Terapii, Nos. 25 and 26, 1893.

method for controlling a nasal bleeding. "The patient must immerse his or her genitals in cold water, and keep them therein for a short while."

Correspondence.

"HALLUX VALGUS."

BOSTON, November 30, 1893.

MR. EDITOR: — I am much interested in an article bearing the above title, by Dr. Joel E. Goldthwait, which appears in the JOURNAL of this week. The disease in question is one of the most common and one of the most inconvenient which a surgeon is called to treat; and I sincerely trust that the splint which Dr. Goldthwait describes may prove efficacious for its relief. I am, however, free to say that in an experience extending over a large number of cases, I have not succeeded in obtaining complete and permanent relief from the use of any external or mechanical appliance which I have been able to find or invent.

The greater number of the cases which I have seen have been of aggravated and chronic character, and possibly may have passed the stage in which external treatment could afford relief; and most of the patients have later submitted to operation, with the result of relief from the deformity resulting from the abnormal position of the parts composing the joint, and absolute comfort and ease in the perfect use of the foot; with the addition of what was to me a source of some surprise at first, an apparent restoration of the functions of the joint, that is, a freely movable, firm and useful articulation.

The first application in this country, so far as I know, of the operation described by Dr. Goldthwait, was made by Prof. P. H. Hamilton, of New York, who presented a record of eleven cases thus treated. The article appears in the transactions of the Buffalo meeting of the American Medical Association. In this paper Professor Hamilton recommends a subsequent treatment which required two to three weeks for the cure.

In the New York *Medical Record*, July 30, 1880, I published an account of two cases in which an operation somewhat similar to that described by Dr. Goldthwait was performed upon both feet of the same patient with successful results. In all my cases the diseased and distorted head of the bone was entirely removed. Since that time I have had quite a large number of cases of this disease, in one or two of which the inflammation of the soft parts had become so extensive that the skin over the joint had necrosed, and a fistulous opening led from the surface into the cavity of the joint. In this case the entire cavity was filled with granulations, and the recovery materially retarded; but the patient has, nevertheless, in every instance, a useful and mobile joint, from which he has never suffered the slightest inconvenience.

I cannot think that the partial operation described by Dr. Goldthwait would have been either desirable or efficient in any of the cases I have seen. The most marked characteristic of these cases has been the displacement of the head of the first metatarsal bone, with greater or less degrees of distortion in shape, often with arthritic deposits, and sometimes with destructive changes in the joint structures which would not be relieved by the removal of a wedge-shaped portion of the head of the bone. It would seem to me that entire removal of the diseased structures is better surgical practice in this, as in other operative measures. I have never left the wound open, but have closed it with sutures, which in all but one case were removed on the third day, with the result of first intention in healing; and the patient was walking on the fifth day. In no case has there been a recurrence of the bunion, or any indication of trouble in or around the structures of the joint.

Very truly yours,

ALBERT N. BLODGETT, M.D.

STAINING BACTERIA UPON THE SLIDE WITHOUT USING A COVER-GLASS.

BOSTON, November 19, 1893.

MR. EDITOR: — Some of your readers may be interested to know of a method, which I have been using for some time and have found very convenient, of staining bacteria upon the slide without the use of a cover-glass.

By means of a platinum loop a drop of a liquid culture or of the water of condensation from a solid culture is spread upon a clean slide. Or a drop of water may be placed upon the slide first and then spread with a small quantity of the material to be examined. The preparation is held in the fingers and passed three or four times through the flame of a Bunsen burner or alcohol lamp. From a dropping-bottle the carbol-fuchsin or other stain is put on the specimen for a minute and washed off in water. After drying, cedar oil is dropped directly upon the preparation which is now ready to be placed under the immersion lens.

The advantages are: Convenience in handling; no need of forceps nor of Canada balsam; the slides clean readily in alcohol. The method is especially adapted to the rapid examination of plates from a mixed infection. When a specimen is found which it is desirable to preserve, the oil can be blotted off and replaced by balsam and a cover-glass.

Respectfully,

CHARLES NORTON BARNEY,
Harvard Medical School.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 25, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	676	221	16.20	18.45	2.40	.60	9.15
Chicago	1,438,000	452	134	14.08	16.94	1.10	2.86	6.60
Philadelphia	1,115,562	—	—	—	—	—	—	—
Brooklyn	978,394	354	117	15.40	16.24	.84	2.52	8.12
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	210	76	11.52	18.24	1.92	.48	6.24
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	96	27	16.64	13.52	2.08	5.20	7.28
Cincinnati	305,000	123	41	8.91	23.49	—	1.62	4.05
Cleveland	290,000	91	27	17.60	17.60	4.40	2.20	3.30
Pittsburg	263,709	—	—	—	—	—	—	—
Milwaukee	250,000	89	37	17.92	14.56	1.12	3 36	8.96
Nashville	87,754	35	12	8.58	8.58	2.86	—	2.86
Charleston	65,165	36	11	—	2.78	—	—	—
Portland	40,000	4	2	25.00	50.00	—	25.00	—
Worcester	96,217	26	7	30.80	19.25	—	—	23.10
Fall River	87,411	29	15	10.35	13.80	3.45	—	3.45
Lowell	87,191	29	7	6.90	10.35	—	—	—
Cambridge	77,100	30	11	23.33	13.33	3.33	6.66	—
Lynn	62,656	15	5	13.33	—	—	6.66	—
Springfield	48,684	20	3	10.00	10.00	—	5.00	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	23	10	17.40	13.05	4.35	8.70	4.35
Holyoke	41,278	18	4	5.55	44.44	—	—	5.55
Salem	32,233	14	—	14.28	—	—	7.14	7.14
Brockton	32,140	6	1	—	—	—	—	—
Haverhill	31,396	10	1	10.00	10.00	10.00	—	—
Chelsea	30,264	8	3	37.50	25.00	12.50	—	—
Malden	29,394	14	2	7.14	7.14	7.14	—	—
Newton	27,556	—	—	—	—	—	—	—
Fitchburg	27,146	4	0	—	—	—	—	—
Taunton	26,972	8	2	12.50	—	12.50	—	—
Gloucester	26,688	2	0	—	—	—	—	—
Waltham	22,058	3	1	66.66	—	—	—	66.66
Quincy	19,642	6	3	16.66	16.66	—	—	—
Pittsfield	18,802	5	2	60.00	20.00	—	20.00	—
Everett	16,585	3	1	—	—	—	—	—
Northampton	16,331	5	0	—	—	—	—	—
Newburyport	14,073	7	2	14.28	—	—	14.28	—
Amesbury	10,920	3	2	—	—	—	—	—

Deaths reported 2,459: under five years of age 787; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fever) 358, acute lung diseases 408, consumption 266, diphtheria and croup 169, typhoid fever 49, diarrhœal diseases 43, scarlet fever 27, cerebro-spinal meningitis 23, measles 19, whooping-cough 15, malarial fever 7, erysipelas 3, small-pox 3.

From scarlet fever New York and Chicago 6 each, Boston and Cambridge 4 each, Brooklyn 3, Milwaukee 2, Cleveland and Chelsea 1 each. From cerebro-spinal meningitis Brooklyn and Cleveland 4 each, New York and Chicago 3 each, Washington 2, Boston, Worcester, Lowell, Chelsea, Malden, Quincy and Pittsfield 1 each. From measles New York 9, Chicago, Brooklyn and Milwaukee 2 each, Worcester, Fall River, Lowell and Pittsfield 1 each. From whooping-cough Cincinnati 4, New York and Chicago 3 each, Brooklyn 2, Boston, Cleveland and Lynn 1 each. From malarial fever New York 3, Brooklyn 2, Cleveland and Nashville 1 each. From erysipelas New York, Chicago and Brooklyn 1 each. From small-pox New York 2, Chicago 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,327,846, for the week ending November 18th, the death-rate was 24.0. Deaths reported 4,751: acute diseases of the respiratory organs (London) 615, diphtheria 117, whooping-cough 92, measles 85, scarlet fever 77, diarrhœa 62, fever 61, small-pox (Bradford 8, Birmingham 4, Bristol 2, London, West Ham, Leicester, Oldham and Leeds 1 each) 19.

The death-rates ranged from 10.8 in Halifax to 31.4 in Birmingham; Bradford 24.5, Brighton 17.7, Croydon 11.0, Hull 27.2, Leeds 21.2, Leicester 17.2, Liverpool 28.8, London 24.4, Manchester 25.6, Newcastle-on-Tyne 23.0, Nottingham 16.8, Portsmouth 17.1, Sheffield 26.4, Sunderland 20.2.

METEOROLOGICAL RECORD,

For the week ending November 25, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.		Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches†
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..19	30.01	37	41	33	73	68	70	W.	N.	6	3	O.	O	
M..20	30.02	35	38	32	90	73	82	N.W.	N.W.	6	6	N.	F.	.02
T..21	30.14	36	45	28	72	56	64	W.	S.	10	9	C.	O.	
W..22	29.68	46	57	36	96	72	84	E.	S.W.	26	14	R.	C.	.56
T..23	29.74	46	49	42	74	63	68	S.W.	N.W.	10	12	F.	O.	
F..24	29.72	38	42	33	66	49	58	N.W.	W.	12	21	O.	C.	
S..25	30.23	30	35	26	70	42	56	N.W.	W.	14	10	C.	C.	
☞	29.94		44	33			69							.58

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 25, 1893, TO DECEMBER 1, 1893.

FIRST-LIEUT. ALEXANDER N. STARK, assistant surgeon, U. S. A., is relieved from duty at Fort Clark, Texas, and will report in person to the commanding officer, Fort Sam Houston, Texas, for duty at that post.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday, December 11, 1893, at 8 o'clock, P. M.

Dr. M. H. Richardson: "Trigeminal Neuralgias Treated by Avulsion of the Second and Third Divisions at their Foramina of Exit from the Skull; with cases." Discussion opened by Dr. G. L. Walton and Dr. S. J. Mixter.

Dr. F. C. Shattuck: "Four Cases of Myxœdema Treated by Thyroid Extract." Discussion opened by Dr. J. J. Putnam.

Members are kindly requested to show interesting cases and pathological specimens.

JOHN T. BOWEN, M.D., *Secretary*.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Wednesday, December 13th, at 8 o'clock, P. M., by Dr. H. P. Bowditch. Subject, "Anthropometry and the Laws of Growth." Physicians are cordially invited.

APPOINTMENTS.

The following appointments have been made to the Faculty of the Dartmouth Medical School: TILGHMAN M. BALLIET, M.D., Professor of Therapeutics; GILMAN D. FROST, M.D., Professor of Anatomy; GEORGE A. LELAND, M.D., Professor of Laryngology.

RECENT DEATH.

SAMUEL MOORE LOGAN, M.D., M.M.S.S., formerly of East Boston, died at Riverside, Cal., recently, aged sixty-five years.

BOOKS AND PAMPHLETS RECEIVED.

The Medical News' Visiting List, 1894. Philadelphia: Lea Brothers & Co. 1893.

The Nervous Origin of Jaundice. By A. D. Rockwell, M.D., New York. Reprint. 1893.

Essential Details in the Conduct of Labor. By Kate Reynolds Lobingier, A.B., M.D., Denver, Col.

Hospital Bulletin of the Rochester, Minnesota, State Hospital. Volume III, No. 1. November, 1893.

Etude sur les Abces Chroniques Enkystés de l'Amygdale. Par le Dr. Eug. Peyrissac, Paris. Octavo Doin. 1893.

Kentucky School of Medicine in the City of Louisville. Register of Students, 1893. Circular of Information. 1894.

A Theory of Development and Heredity. By Henry B. Orr, Ph.D., Professor at the Tulane University of Louisiana. New York: Macmillan & Co. 1893.

The Physicians Pocket Day-Book. Designed by C. Henri Leonard, M.A., M.D. Issued annually by The Illustrated Medical Journal Co., Detroit, Mich.

A New Method of Direct Fixation of the Fragments in Compound and Ununited Fractures. By Nicholas Senn, M.D., Ph.D., LL.D., of Chicago. Reprint. 1893.

Minor Surgery and Bandaging. By Henry R. Wharton, M.D., Demonstrator of Surgery in the University of Pennsylvania. Philadelphia: Lea Brothers & Co. 1893.

L'Inflammation. Par Maurice Letulle, Professeur agrégi à la Faculté de Médecine de Paris, Médecin de l'Hôpital Saint Antoine. Paris: Georges Masson. 1893.

Defective Conditions of the Vocal Organs Studied, in Connection with Questions of the Oral Method of Training the Deaf; The Tongue. By Harrison Allen, M.D. Reprint. 1892.

Information for Nurses in Home and Hospital. By Martin W. Curran, Graduate of the Mills Training-School, Bellevue Hospital, New York City. Illustrated. New York: J. H. Vail & Co. 1893.

Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. Volumes the seventy-fourth and seventy-fifth. London: Longmans, Green & Co. 1891-92.

Asiatic Cholera: Its History, Pathology and Modern Treatment. By A. J. Wall, M.D., Lond., Fellow of the Royal College of Surgeons of England; of the Medical Staff of H. M. Indian Army (Retired List). London: H. K. Lewis. 1893.

Handbook of Public Health and Demography. By Edward F. Willoughby, M.D., Lond., Diploma in State Medicine of the London University and in Public Health of Cambridge University. London and New York: Macmillan & Co. 1893.

New Truths in Ophthalmology as developed by G. C. Savage, M.D., Professor of Ophthalmology in the Medical Departments of the University of Nashville and Vanderbilt University. Thirty-two illustrations. Published by the author. Nashville, Tenn. 1893.

Outlines of Obstetrics; A Syllabus of Lectures delivered at the Long Island College Hospital. By Charles Jewett, A.M., M.D., Professor of Obstetrics and Pediatrics in the College and Obstetrician to the Hospital. Edited by Harold F. Jewett, M.D. Philadelphia: W. B. Saunders. 1894.

Text-Book of Normal Histology; Including an Account of the Tissues and of the Organs. By George A. Piersol, M.D., Professor of Anatomy in the University of Pennsylvania. With 409 illustrations of which 358 are from original drawings by the author. Philadelphia: J. B. Lippincott Co. 1893.

An Outline of the Embryology of the Eye, with illustrations from original pen drawings by the author. By Ward A. Holden, A.M., M.D., Assistant Surgeon, New York Ophthalmic and Aural Institute; Clinical Assistant, Vanderbilt Clinic. The Cartwright Prize Essay for 1893. New York: G. P. Putnam's Sons. 1893.

The Diseases of Childhood (Medical). By H. Bryan Donkin, M.D., Oxon., F.R.C.P., Physician to the Westminster Hospital and to the East London Hospital for Children at Shadwell; Joint-Lecturer on Medicine and Clinical Medicine at Westminster Hospital Medical School. New York: William Wood & Co. 1893.

Manual of Bacteriology for Practitioners and Students, with Especial Reference to Practical Methods. By Dr. S. L. Schenk, Professor Extraordinary in the University of Vienna. Translated from the German (by the author's permission) with an appendix. By W. R. Dawson, B.A., M.D., Univ. Dublin, Late University Travelling Prizeman in Medicine. With four hundred illustrations, partly colored. London and New York: Longmans, Green & Co. 1893.

Lecture.

LECTURES ON SURGERY.[1]

BY DAVID W. CHEEVER, M.D.,
Professor of Surgery in Harvard University.

XXI.

DISEASES OF THE BONES.

These are just the same as the diseases of the soft parts, only they have different names. What is called ulceration in the soft tissues is called caries in the bone; and what is called mortification in the soft tissues is called necrosis in the bone. The names, however, need not confuse us; but the processes which take place in bone as distinguished from the same processes in the soft tissues are very different on account of the difference of the tissue. The bone is immensely hard. All processes which take place in it are proportionately slow; and the process of ulceration, or the process of suppuration, or inflammation in the bone itself, is a matter of weeks or months; whereas the same process would run its course, in the soft parts, in a few days. Singularly enough, bones, which are quite free from sensitiveness, become excessively painful when inflamed; and this is due, probably, to the fact that their interior is subjected to an immense hydraulic pressure on account of the hardness of the bony structures, where inflammatory processes and exudations are taking place; just as the pain of felon or deep whitlow, which is intense as compared with the pain of a superficial abscess, in a lymphatic gland; just as we know that that must be due to the fact that pus is shut down on the bone under the periosteum; so, in the bone itself, inflammatory processes are very painful, as well as very slow.

The first class of affections of the bones which we naturally would take up would be those which affect the periosteum or membrane which nourishes the bone upon the outside. The periosteum is, in its healthy state, a thin and nearly transparent membrane, made up of a delicate web of connective tissue containing vessels, clinging closely to the bone, fitting it snugly in every direction, having to be dissected up to distinguish it from the bone and affording the superficial bone a large part of its nourishment. The Haversian canals and the inner periosteum also nourish the inside of the bone. The simplest and most common affection of the periosteum is called,

SIMPLE ACUTE PERIOSTITIS.

It usually comes on in consequence of a blow, or frequently by great exposure to cold. It has frequently arisen from the patients plunging into freezing water, or standing for a good while in snow, and then walking about briskly and restoring the circulation too rapidly, or approaching a fire, something of that kind. It often occurs over the tibia. I will take that as a site of the disease easy to demonstrate and talk about.

What are the signs of simple acute periostitis? Always swelling, always a tumor, but small, defined, oval, firm, painful. This is due to the pouring out of serum and the white cells of the blood between the periosteum and the bone. Nothing can resist this hydraulic pressure. The bone does not give way, but the membrane over it does, and it rises out in the form of a sac. This sac raises the fascia and muscle over it and the skin, so that we feel the tumor on the surface, which is due to effusion of serum. It does not fluctuate. It is too tight and hard to fluctuate. There is no discoloration of the skin. A painful, non-pulsating and non-fluctuating tumor over the hard bone; that is the peculiarity of acute periostitis.

It arises also from other diseases. It arises very frequently from syphilis. Then it is of a much more subacute or chronic character. The pain is aching and dull. The formation of the tumor is slow. It never reaches the suppurative stage. It forms an outgrowth upon the bone called a node, beneath the periosteal layer.

The treatment of acute simple periostitis is easy and quite sure to effect a cure if it is attended to promptly. The limb must be kept strictly still in the horizontal position; warm fomentations applied over it are often sufficient. If that is not sufficient a cure may be hastened by a blister, or the strong ethereal tincture of iodine, or compound tincture of iodine, applied. In the mild case, often the result of rest and warmth and subsequent blistering is to cause gradually an absorption of the effused fluid; the periosteum settles down upon the bone and the disease is cured. If, however, the disease is seen at a later stage and has gone too far to be relieved by this simple method of treatment, then the best treatment is an incision, which should be made down to the bone until we are sure that the knife scrapes on the bone itself. That is curative at once. Inflammation subsides; the pain goes away; bloody serum and thickened flakes come out through the opening in the periosteum. Possibly suppuration takes place, but not always. If the part is stuffed with antiseptic gauze, probably it will not suppurate. The pain is relieved at once, and the patient gets well. That is simple, acute, circumscribed periostitis.

There is another form called diffused periostitis, which corresponds to diffused cellulitis in the soft tissues, and is distinguished from abscess; and this diffused periostitis is one of the most fatal and rapid complaints that can occur. It either destroys the patient's limb and leads to amputation after spontaneous fracture of the bone, or, more frequently, it leads in feeble persons to death. Diffused suppurative periostitis is exactly like diffused suppurative cellulitis. There is no boundary wall of lymph; no limit of the disease. It strips the periosteum from the bone and forms an immense sac of pus with marked constitutional symptoms.

On account of the very severe constitutional symptoms it produces, the name of typhoid of bone has been given to it. It occurs almost always in children, affects especially the lower part of the femur and upper part of the tibia, and produces intense constitutional symptoms resembling typhoid fever. The child has high temperature and sometimes a slight cutaneous eruption like typhus; becomes rapidly and intensely sick; and swelling and œdema begin about the lower part of the femur, usually above the joint and deep in under the fascia lata, so that it does not make much external showing at any particular point; general œdema, with great pain, and very severe constitutional symptoms.

The progress of the disease, if let alone, is that suppuration forms under the periosteum on the shaft of

[1] These are unwritten lectures printed from the stenographers' reports. Verbal corrections are made in revision, but no rhetorical changes. They were delivered to the third and fourth classes as part of the regular course.

the femur without any boundary being set up by the pouring out of lymph; strips up the periosteum; bursts through the periosteum; makes a large sac of pus held by the fascia lata; and in consequence of its denuding the shaft of the femur of periosteum, the bone, lying in this mass of pus so long, rapidly becomes carious. Sometimes the disease goes through the bone and affects the medullary cavity, if it goes on long enough. It is very difficult, almost impossible for this abscess to burst; the fascia lata making a secure bag for it. It retains the pus, and you are conscious of a large fluctuating sac. The child sinks into a state of great exhaustion. If the disease goes still further unrelieved, the medulla of the femur having been invaded, the shaft becomes carious and extremely brittle, and in some slight movement breaks; and you have spontaneous fracture of the femur, shown by great pain and by the drawing up of the two ends of the bone. This is an extreme condition and it is usually followed by death. Occasionally, it is said, the disease appears on the upper part of the femur. It does not, as a rule, affect the joints; but the shaft under the periosteum.

This disease is unfortunately often overlooked in its earlier stages when something might be done to control it. It is mistaken for typhoid fever, or rheumatism; and it is not until extensive destruction has taken place that the presence of a fluctuating sac is detected. Then if it is laid open, and the surgeon passes in his finger, he finds the shaft of the femur lying smooth as a stick, without any covering, running through this sac of pus. Amputation in that case is frequently the only means of saving life; the disease of the femur having gone so far that it is incapable of repair. If the disease can be recognized, and is recognized early, no doubt much can be done to relieve it.

The commencement of the disease is down on the bone just as felon is on the finger, but the depth of surface is vastly greater than in the hand.

The true treatment is early and deep incision. This must be made, however, with great caution. The skin and cellular tissue should be cut through; then the fascia lata nicked and pricked, and slit up on a director, and the finger passed in, and perhaps the director, and moved about until pus is reached. When found, free incision should be made, and the cavity washed out. It is better, probably, to make two incisions on opposite sides, put through a drainage-tube, and irrigate constantly through the tube. If this can be done at a very early stage, the femur may be saved, otherwise not.

Almost all the cases I have seen have been hospital cases; and those I have seen in private houses have been just as far advanced as when they are brought to the hospital. All the cases I have seen have been in the advanced stage, where there was a large sac of pus, the femur already denuded, and destruction gone on beyond the chance of doing any good. I have once or twice seen spontaneous fracture, several times amputation, and several times death. The worst amputation is that which has to be done in the feeble person above the middle of the femur; and which is very liable to be fatal, on account of the severity of the operation, the location of it, and the weakness of the patient. Sometimes there is no other resort to try.

This disease is not very much insisted on in textbooks, but, as it is the cause of loss of limb and life, I have dwelt a little more upon it; and you will find in the poorer population of all cities, among feeble children, these conditions come on not very rarely.

Exposure to cold and blows, going in bathing in improper seasons of the year, being wet and going about in wet clothing, blows about the tibia and femur in the feeble child ill-nourished, will bring on this condition, or some other form of suppuration of bone. Sometimes it brings on abscess in the bone itself, of which we will speak presently.

CARIES

Is an ulceration of the bone; a disintegration and breaking down; washing out of lime salts; changing of cancellous tissue into either a tubercular cheesy mass, or fat; and the formation of a soft vascular mass, which rapidly loses its firmness, and remains as a soft substance inside the cancellous tissue of the bone. As you might suppose from that description caries almost always occurs near the epiphyses, rarely in the shafts. It is about the joints that you see almost all the cases of caries. Caries is not confined to any age, but it is more frequent in the young; and necrosis, I think, is more common in the adult than in the child.

There seems to be no reparative effort in caries. It is an ulcerative process, and goes on very slowly and insidiously; not very painful; no very acute symptoms; and destroys large surfaces on the inside of the bone, and finally gives rise to an abscess, in many cases with a sinus leading down into the cavity. Through this, after a long while, the patient may succeed in throwing out the pus and all the broken-down cancellous tissue; and in some cases the disease will heal up spontaneously under constitutional treatment and without surgical interference; but, if it is recognized, it unquestionably does better with surgical interference; and in some cases, if it can be attacked early, it seems as if it could be almost aborted; that is, you have the symptoms, for instance, of a slight amount of swelling and œdema; a tender spot on the foot: lameness in walking; perhaps a little hectic at night; occasional occurrence of sweats; if the symptoms persist a good while and the surgeon makes a prompt incision down upon the bone, he finds usually the periosteum thickened and somewhat separated from the bone. He finds, to his surprise, when he presses upon the bone that it is a shell; it lets a blunt instrument push into it; break through this little outer shell and you find a carious cavity, which was originally the cancellous tissue of the bone. It has all been thinned out and absorbed, so that it is semi-fluid; and there is nothing but a shell of bone surrounded by periosteum. In this condition of things, if the cavity is carefully curetted and drained, and packed and washed out, frequently a good result ensues.

NECROSIS.

Caries is somewhat different from necrosis in this respect, that you may scoop out all the carious cavity down to a point where it seems that nothing more can be scooped out without violence, and may have that promptly followed by repair. Such is not the case with necrosis. If you attack necrosis and attempt to cut it away, before nature has separated it and marked the line of demarcation between living and dead bone, you do not succeed in establishing repair; but the necrotic process goes on, until the limit is set by nature, and the piece can be removed. This loose piece is

sometimes called a sequestrum; and it is only after it is thoroughly detached that it can be removed with any great advantage. It may be hastened to a certain degree by cutting through the shell of bone that surrounds it, and giving it free exit; but it is hardly useful to attempt to tear it away before it has become loosened itself, because you cannot end the disease until nature has stopped the necrosing process.

Necrosis is like gangrene or mortification of the soft parts. Some portion of the vessels of the bone become obstructed; the Haversian canals become shut up with inflammatory exudation or coagula; the nutrition is cut off from quite a piece of bone, and it dies; and then nature makes the effort to separate it from the living tissue by an active process of exudation, inflammation and suppuration around it. This gives rise to abscess. Then the abscess drills a hole through the bone; then comes up to the surface under the fascia, and finally makes a small outlet, and leaves one of those little red pouting sinuses. You pass the probe, and come down upon a little hole, of which you are conscious in the bone, about large enough to admit a shot; and then you strike inside a bare portion, which may or may not be loose, according to the length of time the disease has existed. Meanwhile, nature surrounds this bad piece with a strong circle of vessels, and active inflammatory processes, which finally slough it off and let it lie loose in the cavity. Now comes in a very extraordinary process of nature to prevent fracture of the limb while this destruction takes place. Suppose the necrosis takes place in the tibia. While the dead bone is being separated and got ready to be thrown off, new bone is thrown out all around to strengthen the diseased shaft; and an involucrum, or shell, is formed around the diseased piece; and the bone enlarges, and is very much broader than the tibia of the other side. In the midst of this enlargement you find the sinus which leads down directly through the bone to the sequestrum. The formation of new bone is a very important provision on the part of nature to prevent fracture of the limb while separation of a dead piece of the shaft takes place. But at the same time this change defeats, so to speak, the other object of nature, which is to cast off the dead piece, because it encloses it firmer and firmer in the shell. The result is that a sequestrum, *per se*, is never discharged from the living tissues. It is held in sometimes for years; and it rattles about, so to speak, inside the tibia in this cavity, surrounded by new bone: never healing; always keeping up a slight discharge; but never having an opportunity to escape.

There is not much pain in this process. It is a slow process. I have seen sequestra in the tibiæ of patients who have gone about, and the duration of the disease reach forty years without any operation; without much impairment of health, and without a great deal of pain. But the disease does not get well until the surgeon interferes. So then, when we have found this sinus, the true practice is to cut down and chisel away and trephine away a large portion of this shell of new bone, to open up the cavity in which the sequestrum lies. If it is loose we take it out; and if not, we wait for it. If we take it out, it promptly heals, and becomes a strong serviceable limb.

These are the marked differences between caries and necrosis. Caries is essentially destructive throughout. It is an ulceration. It occurs frequently in youth; almost always about the epiphysis. It is slow, insidious, but it does not get well, as a rule, without operative interference; and if the cavities are scraped out, it usually gets well. Necrosis, on the other hand, is a disease of strong adults, frequently. The diseased piece can never escape. It is incurable except by operation; and the operation usually is curative. Sometimes, however, it unfortunately happens, that the bone is so thoroughly diseased, that the same process is repeated in different portions of the shaft, over and over again; and occasionally you see the tibia so riddled with sinuses, and so deformed by the growth of new bone, that it is practically useless; and in such a case amputation is the best treatment for the patient.

ABSCESS OF BONE.

There is a form of suppuration in the bone which is called abscess of bone. The peculiarity of this seems to be that it is essentially a pus formation, without caries or necrosis, taking place somewhere in the medullary tissue of the bone. It generally occurs somewhat near the joints; but may be in the shafts of the long bones. Unlike the other affections of which we have spoken, it is intensely painful. The agony is great and lasting. The patient loses sleep, emaciates, has unbearable pain all the time, and there is no apparent cause for it; he will point out the location of the pain, but you cannot see any change on the outside. You may, perhaps, by taking the finger and rapping about on the bone, come upon a point where he winces every time, and says it is exquisitely painful; and you may find a slight degree of œdema. There is not much swelling, but constant acute pain, which must be distinguished from neuralgic pains, which latter may last months or years. This pain is due to the formation of a small amount of pus; rarely more than a drachm, in the bone; shut in; trying to bore its way out. It is, I suppose, comparable to the pain of felon in the hand. If this disease is recognized, a cure is quite easy and certain. Cut down upon the bone and trephine the shaft and open the medullary cavity and give exit to the pus, if it is found. If it is found, I say, because sometimes after trephining you are disappointed that you do not strike directly upon pus, and have been deceived perhaps to the extent of one-half to one inch in the location of the pain. It is not exact, and you have not hit the exact spot. In this case by taking a gimlet, or something of that kind, and boring up and down in the medullary cavity, you almost invariably strike the pus; and you are surprised to see how little there is, and you are also surprised to see how absolute the relief is; and how promptly this cavity will granulate and heal up. These, if they can be recognized and treated, are an extremely satisfactory class of cases. Unfortunately, like the cases of acute diffuse periostitis, they frequently are not diagnosticated until they have produced destructive effects in the bone itself.

OSTEOMYELITIS.

There is a disease of the marrow of the bone which is like a diffused periostitis; that is to say, it is a diffused inflammation of the cavity of the bone and that membrane, which lines the inside of the bone, sometimes called an endosteum. It is not a distinct membrane, but made up of cellular tissues and fat cells, whose vessels nourish the inside of the bone. This disease, as you might suppose, shut away inside the cavity of the bone, is usually the result of trau-

matic causes; either a compound fracture, or an amputation. Those are usually the causes of this disease which is named osteomyelitis, or an inflammation of the marrow of the bone. After amputations it is not infrequent. After compound fractures it occurs occasionally, and is frequently fatal. After amputations it is not fatal, as a rule. But after compound fractures it frequently is. The reason of that is this, that after the amputation you have the end of the bone exposed; the bone sawed off; the medullary cavity open; and if the disease comes on there and osteomyelitis takes place in the stump, the stump does not close, never heals, keeps up a pouting, discharging sinus communicating with the medullary cavity. This is a safe exit, so to speak, for the suppuration which is taking place; and prevents, probably, the absorption of this material higher up into the system; so that, as a rule, the person with osteomyelitis after an amputation recovers. But if you have a compound fracture, and the bone is broken into the medulla, the cavity is pretty much covered over. If this acute inflammatory process begins it has no exit, and travels up the shaft, and rapidly gives rise to intense symptoms, and frequently terminates in septic infection, in septicæmia; and occasionally in that process called embolism of fat; and in the carrying up of other septic materials into the system; so that osteomyelitis after compound fracture is generally accompanied with intense constitutional symptoms, and terminates often in a fatal septicæmia.

In a case of osteomyelitis after an amputation, the stump does not heal. The patient goes about without much pain. Exploration of the end of the bone shows that a piece of the central portion has separated; that a cast, so to speak, of the inside of the bone has formed; and, after a while, cutting down upon it and scraping back the tissues, you can seize this cast of the interior of the bone and draw it out; this is a true sequestrum of the inside of the bone. If it can be extracted entire, this is speedily followed by healing and cure.

SCLEROSIS.

In consequence of a very slow infiltration into the Haversian canals and connecting cavities of the bone which nourish it, the bone salts get deposited in excess, sometimes, and the bone thickens and hardens without any acute suppurative process; grows thicker and harder and heavier; and what was originally perhaps, a shaft of bone, becomes increased to twice the usual thickness; and this process is called sclerosis, or hardening. Such a bone becomes very heavy and large. The disease is slow and it is not productive of very acute symptoms, except dull pains.

It is sometimes the result of poisons; occasionally the result of syphilis; and it is apparently, as far as I can see, irremediable, and sometimes leads to amputation. If it is directly the result of syphilis, it is more likely to show itself upon the surface of the shaft, in the form of hard, bony nodes which grow beneath the periosteum. These can be benefited often by blistering the skin; and frequently by the taking of large quantities of specific medicines, which affect the system in the tertiary stages of syphilis; but in the other process in which the bone grows hard slowly without syphilitic infection, the bone sometimes remains in that condition for years, without producing any great trouble except its weight and dull pain.

ABSORPTION — POROSIS.

On the other hand, there is occasionally a condition of bones in which they absorb and grow thinner and thinner; absorption of the shell takes place; and the bone becomes exceedingly brittle and weak. Those are the rare cases in which what is called spontaneous fracture takes place, without the history of any injury, or any force that was sufficient to break the bone. Instances have occurred in which the patient, in this feeble condition of bone, is lifting only a book from the table, and drops it, and finds that the humerus is broken. This is absorption, porosis.

Unfortunately we do not know its cause; and do not know how to relieve it.

It must put us on our guard always with regard to prognosis in all troubles about the bones, and especially in the subsequent use and strength of fractured bones, because, occasionally, in spite of the best care, atrophy, or wasting, or porosis of the bones does occur after the injury; and the fracture, although it joins, does not become strong. The arm shrinks and dwindles and breaks, or becomes practically useless. It should be distinctly understood that this process is beyond our control; that we can in nowise be held responsible for it. We should be on our guard as to giving too favorable a prognosis.

ATROPHY.

Atrophy sometimes takes place, by which the bone wastes away until, in some cases, the humerus has become shortened an inch or two in consequence of this process, and the elbow has approached the shoulder. A very small bone is felt between, which is feeble and brittle, and the bone atrophies in its entire length with shrinking. This is quite rare, but occasionally takes place.

HYPERTROPHY.

The opposite change, or hypertrophy, or bony outgrowths, which are distinct from sclerosis, occasionally occur and make great deformities; sometimes come on the collar bone making large bunches. We suspect that they are syphilitic, but they do not always yield to syphilitic remedies. They form on the face, on the superior maxillary bones, and give rise to that sort of face sometimes called leontiasis; here bony outgrowths take place, push the nose back, and growing out beyond the nose, push the eyes up out of the orbit.

These are true exostoses or bony growths from the bone itself; and when operated on and cut away are found to consist of pure bone.

The only treatment is to cut and trephine and chisel them away, in the hopes that when the flesh has healed over it the growth will not recur. Occasionally, these growths form in a curious way on the forehead, in the front wall of the frontal sinus; and the inner part of the growth lies in the inner part of the frontal sinus. After cutting through the skin and stretching it back, we find we can lift the bone out of its bed in the frontal sinus, and a cure will then speedily ensue. But this seems to be a somewhat different sort of growth from those which grow with large bases from the superior maxillary bones.

In certain classes of the chronic insane, in chronic dementia, there seems to be a change in the bones with regard to the phosphates, and the bones become weak. It is probably true that a good many cases of fractures of the ribs, which occur among the insane in asylums,

are due to very slight force, like spontaneous fractures anywhere; and while they may be ascribed to brutality or carelessness on the part of attendants, I am inclined to think this is often not the case; and that they are in that condition that they will break almost spontaneously on account of the feeble state of the system. This occurs occasionally among those in perfect mental health. I have once or twice seen myself fracture of the rib caused by coughing in an otherwise reasonably healthy individual; in a person somewhat obese and of about sixty years of age. In this case, after a violent attack of bronchitis and repeated coughing, the rib gave way after an expulsive effort. This should prove to us that in so thin and slight a bone as the rib it may become porous, and give way without any positive severe violence.

OSTEOMALACIA.

A very curious condition is osteomalacia, in which spontaneous fracture takes place over and over again. In these cases the patients frequently live to grow up, and the limbs are deformed with innumerable fractures. In such cases among children the slipping down off the chair on the floor will cause the leg to give way; and these breaks, fortunately for the individual, heal promptly, and then give way in another place the next time. This is a little different from the condition known as rickets or rachitis; because that is a condition of the bones in which they bend rather than break. In true rickets, the proportion of earthy salts and organic matter, as existing in the healthy bone, is reversed. The result is cartilaginous, weak, flexible bones, with rather enlarged joints. The spine bends; the breast bone bends; the head sinks between the shoulders; the legs curve out in all directions. Frequently the tibæ curve forward so that they are arched; and various other deformities occur.

In this condition, considerable can be accomplished by apparatus to keep the child's limbs straight; and by building up the child's strength with proper treatment, such as iron and cod liver oil, tonics, nutritious food and open air.

Bones break sometimes, apparently, spontaneously, but really as a result of tumors which are forming in them insidiously. This is especially true of cancer, or osteosarcoma of the femur, tibia or other bones. These occasionally give rise to what appears to be at first spontaneous fracture; and the force which breaks the bone is generally very slight — turning over in bed has broken a femur in the middle of the shaft in a case of unsuspected cancer, or osteosarcoma.

This form of malignant disease generally begins in the medullary cavity, grows and extends, rapidly absorbs and pushes out and thins the shaft or shell of the bone until it becomes so brittle that it gives way; and the cause is wholly, in these cases, malignant disease; so that in elderly people a case of spontaneous fracture, or fracture from insufficient cause, of the shaft of the bone should give rise to a great deal of suspicion as to what made it, and whether it is not probably due to commencing malignant disease of the bone itself. In the shaft, I say, because it is well known that old people break the neck of the thigh bone and neck of the humerus from absorption of the bone, without any form of malignant disease.

Various tumors grow in bones, some of an erectile nature, which pulsate and are mistaken for aneurisms. They form in the medulla, rapidly accumulate a mass of enlarged vessels, throb and beat, absorb the bone just as an aneurism does, push out in a fungus pulsating mass, weaken the limb, and are recognized as a soft pulsating swelling about the femur or tibia, but are truly vascular tumors in the bone itself.

Myeloid disease also deceives us often in regard to the condition of the bone. It is true that myeloid disease rarely occurs in very young subjects; but its favorite site is the head of the tibia, and it forms very slowly; expands the head of the tibia; weakens the limb; gives rise to pain; generally to febrile symptoms; and is difficult to diagnosticate, at first, from caries occurring in the head of the tibia. Caries in the head of the tibia in young subjects is common; myeloid in the head of the tibia in adult subjects is not very uncommon. They frequently are mistaken one for the other. An incision, which seeks to relieve the caries and scoop it out, and falls upon myeloid disease, soon shows us what the mistake is; and in that case amputation is the only resort, and has to be done above the joint. The disease is incurable, malignant. Amputation should be done early to save the patient.

Now, it is necessary to know this sort of thing because it must give us great caution in operating, and in bearing in mind that we cannot tell exactly what we have got to expect when we operate on deep tissues; and that the alternatives must be ready in our mind; and that we must be prepared, and perhaps have prepared the patient, by saying, that we will endeavor to remove the disease; but that we must do what is necessary in order to save life; and if we find any incurable trouble, we may have to amputate.

Original Articles.

MEDICAL TEACHING IN GERMANY.[1]

BY CHARLES F. WITHINGTON, M.D.,
Instructor in Clinical Medicine, Harvard University.

Americans who are likely to consider the subject of medical study in Europe, fall into three classes:

First, the small number of those who, either having received their general education abroad, or having been impressed with the excellence of European medical teaching, decide to take their entire course of medical study and their degree at some European university. I cannot but look upon this as an error for those who intend to practise in our country, for such men find themselves on entering upon their professional career at home at a disadvantage in the following ways: — Their therapeutic armamentarium is rather different from that to which American patients are accustomed, and though they can, of course, readily enough learn the differences between the European and the United States pharmacopœias, yet they are likely to find that a good deal of the sort of medication which is swallowed with avidity or at least with resignation by the hospital patients of Berlin or Vienna, will meet with decided opposition from the self-respecting American stomach. Again, the man who has received his entire medical education abroad knows nothing of these professional traditions and usages to which patients here expect conformity, and which alone can make one's relations with his fellow practitioners endurable. Finally,

[1] Read at the meeting of the Suffolk District Medical Society, October 28, 1893.

a lack of personal acquaintance with any of one's professional neighbors or with any of the older or more prominent physicians of the city or State where one is to settle, must be counted as a great disadvantage.

The second and numerically the largest class of persons contemplating foreign medical study is composed of men who have taken their medical course and degree at home, but who wish further preparation for practice, and are considering whether they can best secure such practical experience as they desire, at home or abroad. Yet it must be freely admitted that if these young men can afford but one year in addition to their required curriculum, a resident house-officership in a good general hospital offers advantages superior to any they can find under other circumstances in any country.

Third, comes a class which I hope and believe is destined to become an increasing one, of men who having already become established in practice, feel a need of temporarily interrupting their work by further study with a view either to specialization, to consultation practice, or to such a picking up of lost threads, such a broadening of the professional horizon, as Harvard offers to her professors in the "Sabbatic year," but which we medical practitioners, while we need it quite as much as any other class of professional men, find it harder to get. If it is not possible to obtain it every seventh year, yet at a longer interval or for a shorter period, it is not, as I have reason to believe, impracticable. The practitioner who, with any of the motives I have just sketched, wishes to change temporarily his horizon, and to "go to school" again, will generally, if possible, cross the water to get what he wants, despite the excellent polyclinic and post-graduate advantages that our large cities now offer.

In a paper like the present, it is manifestly impossible to attempt to cover the whole field of foreign medical teaching, and I shall, therefore, in what I have to say to-night limit myself to a consideration of Germany, and especially Berlin.

Medical study in Germany differs from that in England and in our own country, in that it is always pursued at a university, where it shares in the broadening influence produced by the bringing together of various departments of learning about one common centre. There are about twenty of these universities, the largest being those of Berlin and Munich. As the capital of the chief German State, Berlin stands easily the intellectual centre of Germany and probably of the world. Her university, though less than a century old, comprises nearly seven thousand persons and numbers among its professors some of the brightest lights in the firmament of science and letters.

The German student of medicine passes to his professional studies either from the gymnasium, where he is supposed to have spent nine years in liberal studies, consisting chiefly of classics and mathematics; or he may come to medicine from the Réal School, where modern languages and science replace the classical training of the gymnasia. The gymnasium, however, is held by the best medical men, and by the government also, if we may judge from the distribution of official patronage, as the only adequate preparation for professional study, the Réal School being considered as an educational concession to the popular element. As the gymnasium takes boys at an average age of about nine, they are ready at eighteen or at nineteen (adding the year for compulsory military service) to begin their medical studies, unless they choose, as a few do, to take some semesters with the philosophical faculty of the university before passing on to the medical. Unless they do this, their basis of general culture is less than that of our best medical students, for the gymnasium cannot be held as at all equal to our best American colleges. On the other hand the Germans gain two or three years in time over our college and medical students.

The required medical course occupies eight semesters, (four years). At the end of the second year comes the first examination, the *tentamen physicum*, which covers chemistry, organic and inorganic, mineralogy, physics, botany, anatomy, physiology, zoology, embryology and histology. Near the end of the course occurs the examination on the other usual subjects of medicine, for the doctorate, or medical degree, in case the student chooses to apply for it. But as it is in many cases held to be a useless luxury, being rather expensive and quite unnecessary for medical practice, the student often reserves his money and energy for the State examination, which is essential to engaging in medical practice, which is a severe examination, conducted by government officials, and which makes of every successful candidate in a certain sense an officer of the government and invests him with corresponding authority and responsibility.[2]

I do not believe that the average German medical student is as well equipped as the average graduate of our best schools, that is, those having a four years' course. For, in the first place, the time of actual study is not so long. The winter semester nominally lasts from October 15th to March 15th, and the summer semester from the middle of April till the middle of August. Here are apparently nine months of term time. But no pretence is made of beginning work before November 1st or of continuing it after March 1st. In fact, the "vacation courses" begin March 1st, two weeks before the close of the regular term for which the students have paid. The same amputations are applied at both ends of the summer semester, and when to these lengthened vacations we come to add a two weeks' holiday at Christmas, and the first, second and third days' celebration of the various religious and secular festivals, there is probably not left more than seven months net out of the twelve for work.

Again, our academic "hour" for teaching purposes is fifty-five minutes. In Germany, the first fifteen minutes are always thrown off and the remaining forty-five minutes are, according to my observation, often considerably further reduced. So that the German lecture or clinic averages from twenty to twenty-five per cent. shorter than our own.

As to the instruction, it is generally admirable. The examination is thorough, the diagnosis shrewd, the literature discussed voluminous, recent and widely drawn. But despite, or perhaps because of the excellence of the elucidation, the average student gets probably less advantage from it all than he would from trying to unravel a few obscure cases for himself. To be sure, he serves his time as *praktikant*, when he makes more or less for a "snap" diagnosis. But he rarely works up a case in careful detail. His point of

[2] I have heard it said by some Americans that they found the diploma examinations in Germany remarkably easy. It may be that the examiners lightened the burden a little for foreigners who lacked perfect facility with the language, and who, moreover, were not going to practise in the country. At all events, I notice that for the years 1889-90, while in the entire twenty German universities 1,115 candidates received diplomas, there were at the same time 1,030 rejected. (New York Medical Record, 1891, vol. xl, p. 556.)

view is not so much the bed-side as the lecture benches, for, at least in Berlin, he rarely gets into the hospital wards. He does not read very much, and evidently sets great store for his examinations upon the careful pen-and-ink notes which he has kept of all the cases he has ever seen. In a word, he is made the subject of a constant intellectual *gavage*, in which, if you will allow the figure, the pabulum is of the best quality, and is fed to him with an unsparing hand; but it is so thoroughly predigested that very little work is left for his own intellectual powers to do, and they are likely to develop less activity than might otherwise be gained.

Conditions like the foregoing, which are not specially favorable for the student who is learning to make diagnoses, are, on the other hand, of advantage to the practitioner. From the latter point of view, the abundance of clinical material is very useful. Not only is the material very great in every European city where a large portion of the population is so poor that it must receive medical aid in sickness, but it is exceedingly available. Patients are always willing to be shown, being generally treated with fair consideration, and even when the visitor notices something lacking in this regard, it must be confessed that the patients themselves do not generally appear to be aware of the omission. Post-mortem examinations are, of course, made in all fatal cases, and hence clinical study is never subjected, as must often happen in America, to the incompleteness due to lack of pathological evidence.

The chief clinical teachers can, when they wish to illustrate any particular point, bring forward an immense amount of material. For instance, Mendel is said to have shown at one demonstration of epilepsy thirty-five patients in an hour. Certain of the medical *causes célèbres* make a living by going about from clinic to clinic, the fact that they are already under treatment with one clinical teacher making no difference in their acceptability to another. Special attractions are sometimes even sent for and fetched in a carriage like our coy voters on election day.

To work up properly such immense amounts of material involves tireless industry, and perhaps this is the most striking characteristic of the great medical teachers of Germany. The *breadth* of knowledge of such a man as Senator is something almost incomprehensible. If it be true, as has been said, that Vienna stands for specialism in medical training, it is also true that Berlin stands for breadth of medical learning. Senator's work covers not only the usual field of clinical medicine, but nervous diseases equally well, while at his polyclinic one of his most popular exercises is in connection with the diseases of children. Of course, much of the work, bacteriological, microscopical and clinical, is prepared by his assistants, but one feels that it is all done under his personal orders and supervision, while his incessant stream of publications indicates over what a long frontier of medical science he is pushing forward his explorations.

Senator's clinic at the Charité is called the Third Medical; the first is headed by Leyden, and the second by Gerhardt. These work on simultaneously, but at different hours (Gerhardt, by the way, at eight in the morning), and between them divide all that is of medical importance in the 1,800 beds of that hospital. Henoch, stricken with years, but unstricken with any other infirmity, watches over the children's wards and the children's polyclinic. Jolly, dean of the medical faculty, lectures on neurology and psychiatry. His clinic of mental diseases, occupying some 150 beds in the new Charité, was one of the first of its kind in Europe, having been founded by Griesinger, who was the first, I think, to introduce the non-restraint method in the treatment of the insane. Westphal, who succeeded Griesinger and preceded Jolly, is said to have carried on the department for four years, and perhaps more, without ever once applying a strait-jacket to a patient.

Resisting the temptation to specify individual teachers like Bardeleben in surgery, Liebreich in materia medica, Du Bois Reymond in physiology, Bergmann, the surgeon who tracheotomized the Emperor Frederick and impaled Morell Mackenzie, now in charge of the surgical university clinic, and Olshausen, at the head of the great Frauenklinik near by, I must, nevertheless, give a word to Virchow, whose work in pathology was for years the crowning medical attraction of Berlin. He is now rector of the university, and as such gives the right hand of fellowship and the appropriate moral advice to every matriculant. The cares of administration, political activity (albeit his party has just been signally defeated), paleontological research, these and other interests, still leave him at the age of seventy-two able to give, according to the last official programme, eighteen hours per week of instruction in pathology.[2]

The subjects best taught in Berlin are probably internal medicine, which I have just referred to, nervous diseases and bacteriology. The neurologists are doing a great deal of work on the anatomy of the nervous system. Where else in the world would we find going on simultaneously three elaborate courses on the anatomy of the brain? Here they are, by Waldeyer, Mendel and Siemerling. They are most admirably illustrated by fresh and hardened preparations, and especially in the case of Siemerling, by a series of stained sections of great beauty illustrating every possible level in brain or cord, and capable of demonstration by lantern and screen to a large number at once. Similar work is being done in some other laboratories, notably Mendel's and Oppenheim's, in which, in diffuse affections of the nervous system and in ascending or descending degenerations, practically the whole brain and cord of the patient is reduced to an enormous series of sections illustrating the condition at every possible plane.

In the youngest of the medical sciences, bacteriology, Berlin occupies, as is well known, a leading position.

To illustrate at once what is being done in this branch, and at the same time to serve as an example of the thoroughness with which the Germans organize and carry on scientific investigation, let us briefly describe one of the newest medical institutions of Berlin, one so new that many of my hearers who are familiar with that city have never seen it. This is the Institution for Infectious Diseases, which may be regarded as the first fruits, and perhaps thus far the most useful outcome of Koch's tuberculin discovery. In the enthusiasm which followed the announcement of tuberculin, the government promptly voted the sum necessary to carry out the enterprise, and the institution was opened in August, 1891, with Koch as

[2] With the beginning of the present semester Virchow retires from the rectorship.

director, and a large staff of skilled assistants, among them Pfeiffer, Behring and Brieger.

The Institution is situated just west of the Charité Hospital, and covers a tract of land about 650 by 200 feet in dimensions. It comprises seven wards or barracks of most approved hygienic construction, having all necessary kitchen and service rooms, baths, closets, etc., a general ward, isolating rooms, and a sun-room or sitting-room for patients who are able to be up. These provide for men, women and children suffering not only from such contagious diseases as diphtheria, but from tuberculosis in all its forms, including joint affections and lupus. One building has even been utilized for variola, while others contain puerperal fever, and even influenza-pneumonia. Rather too heterogeneous a mixture of infections, we may say, for the good of the patients treated; but a tolerably good isolation is practised, and the grouping of so many infections directly about the centre of bacteriological research gives obvious advantages for study. In the administration building is a small amphitheatre for lectures, having, among other equipments, a stereopticon and white screen for the display of microphotographs.

Behind this building stands another, which serves two important purposes: first, that of disinfection. The articles (clothing of patients and bedding from the wards) go through a regular order of rooms into and out of the steam disinfection-apparatus, and the disinfector himself is subjected to a bath and change of clothes between the time he loads and unloads the apparatus. Under the same roof, but securely separated, is the autopsy room, where the director personally assigns to various members of his staff the work, bacteriological, chemical and microscopical, which the case demands.

For the carrying out of these researches, an old three-cornered building opposite the hospital department has been fitted up. This, the "scientific department" of the Institution, is a remarkable series of laboratories. Here are brooding-rooms, kept by automatic regulators at an even temperature of 99.5° F. Here are stalls for keeping the animals that are made the basis of experimental investigation, not only the guinea-pigs and rabbits (which since the days of bacteriology have borne away from the long-suffering frog the palm of physiological martyrdom), but also dogs, cats, doves and an occasional monkey. The animals which are already infected are kept in quarters by themselves, and, when they have finally fulfilled their mission, their bodies, together with the micro-organisms they have entertained, are annihilated by cremation in a furnace built for the purpose.

Here are rooms for microphotography, equipped with heliostats to hold the elusive Berlin sunshine and the strongest artificial lights for hours when there is no sun. Dark rooms for the development of these plates, as well as for the macrophotographs which are taken in the adjoining rooms, and by which the clinical pictures of disease, as, for example, lupus, can be perpetuated. A library and reading-room are filled with the latest publications of other workers in the same field. Finally, we notice in one of the narrow entries a door leading to the quarters where all this multifarious work is directed, with a small plate bearing the modest inscription, "R. KOCH."

The educational value of this institution is, of course, greatest to the regular staff of workers, including those under-physicians who are detailed to this duty from the Charité. But their work is, through publication, made the property of the scientific world, while men are always going out from it as did the clever Japanese, Kitisato, to extend the work in other lands.

For the average student who goes to Berlin to study bacteriology, the Hygienic Institute is a more available place for personal practice in bacteriological work. In this building is maintained the sanitary watch and ward over the city. Regularly every two weeks are brought hither specimens of drinking-water from each of the eleven different stations which supply Berlin. These specimens are tested both chemically and bacteriologically, and if the filters (also devised in this institution) are found not to be doing their work, immediate attention is given to the matter. Here are good opportunities for practical study under the instruction of Rubner and Günther.

Courses for beginners are organized several times in a year, each course occupying all the time; that is, eight hours daily, for a month. The work is so systematized that no time is wasted. Each man makes his nutrient media, plants and dilutes his cultures, stains and examines his growths, and in general gets a *coup d'œil* at the subject, which, of course, is superficial, but which is of great service, at least in enabling one to judge of what the special workers in this department are doing. Other more advanced instruction, of course, is also given here.

In closing, I have only a few practical suggestions to make to any contemplating medical study in Germany. In the smaller universities you will probably spend less money, learn more German, see fewer cases medically, and learn far less that is of interest non-medically.

Having decided to study one or more semesters in Berlin, you can matriculate if you see fit, though it is not necessary. For this nothing is necessary but your passport as a citizen of the United States. Your medical diploma is not of the slightest use. Matriculation gives you a right to attend any "public" courses, gives you some reduction of price at theatres and concerts, and confers a certain immunity against police arrest, which may be convenient if you are sportively inclined. Neither need you be deterred by age from matriculating, for you will find among your fellow-students white-headed men in the sixties. Matriculation costs about seven dollars in money and an hour or two in time. If a matriculant, you pay through the university *quaester;* if not, in person to the respective teachers for whatever courses you elect. The usual price for a private course occupying two hours a week throughout the term is five dollars, and for a more or less number of hours in the same proportion, so that fifty dollars for a term will pretty thoroughly fill one's time, twenty hours per week of private courses and as many public courses as one can get time for. There is also usually no objection to an occasional attendance at other clinics than those for which you are regularly enrolled.

Vacation courses usually cost about the same for the four weeks that the university courses of the same number of hours per week cost for four months. Gynæcological and touch courses are dearer. The number of courses offered is usually from eighty to ninety. For one of the bacteriological courses above referred to, occupying the whole of every day for a

month, the cost, including everything, is about twenty-five dollars.

Living in Berlin is cheaper than in the other great European capitals: one can live economically for not much over a dollar per day.

Women receive no recognition in any German-speaking university so far as I am aware, except Zurich. There are a few individual professors, however, who are willing to connive at the presence of women in their courses, especially if they can ascertain that some of their colleagues have committed a similar daring indiscretion.

PRELIMINARY REPORT UPON INVESTIGATIONS CONCERNING THE CONTAGIUM VIVUM OF SMALL-POX.[1]

PRESENTED TO THE WORSHIPFUL COMPANY OF GROCERS, LONDON, BY STEPHEN C. MARTIN, M.D., BROOKLINE, MASS.

THE following is submitted as a partial or preliminary report of the results thus far reached in my investigations regarding the germ of cow-pox. I present it simply as a very concise statement of the facts that I have been able to demonstrate with certainty up to the present date. This will be followed by a full and complete report on the subject, as soon as I have succeeded in thoroughly elucidating certain facts, principally the morphology of the germ, which are not yet perfectly clear to my mind.

A large number and variety of bacteria obtained from vaccine virus can be grown upon the various culture media. Experimenting with gelatine, glycerine-gelatine, milk-rice, agar-agar and glycerine agar-agar, I obtained pure cultures of many varieties, none of which, however, produced cow-pox when inoculated upon the animal.

A year ago I abandoned the use of all culture media except the hardened sterilized serum of bullock's blood. With this at a constant temperature of 37.5° Centigrade, I have since conducted all my experiments. So soon as I adopted this course, I got cultures that produced cow-pox, even after passing through several generations of culture tubes. These cultures, however, were not pure, but contained quite a variety of bacteria. In every instance the blood serum was liquefied.

In November last, from a colony upon the surface of the blood serum, in a tube inoculated with heifer-transmitted cow-pox, I started a series of cultures, which have now reached the ninth generation. From both the surface growth and the condensation water of each of these cultures, I have made inoculations upon calves, and in every instance produced a perfect vesicle of cow-pox. The material "takes" with the same certainty as the lymph from the vesicle. From the vesicles produced by it upon the calf, I have vaccinated a number of children, in every case inducing vaccinia of the most perfect type, the areola not commencing until the beginning of the ninth day, a well-marked febrile reaction, and the crust not falling till the twenty-fifth day or later.

I also have a second series of cultures which I started from another specimen of vaccine lymph, that presents a precisely similar appearance, both gross and microscopical, to the first series.

The history and appearance of every culture tube, is exactly the same. After three days in the thermostat, numerous small white colonies are to be seen upon the surface of the medium, in the course of the lines drawn by the needle, and a cloud appears in the lower part of the condensation water. Each colony occupies a little depression, which it has formed for itself, by liquefying the medium about it. Later the liquefied blood serum flows down from the colonies, carrying the growth with it, and so producing liquefaction in its course and forming white lines, occupying shallow, eroded sulci, running down into the condensation water. At the bottom of the latter, a heavy cloud settles, consisting for the most part of disintegrated blood serum, while the upper portion of the water presents a remarkably clarified appearance. When a culture is seven days old, I inoculate the next tube in the series from it and remove it from the thermostat. No growth develops upon blood serum at the temperature of the room; or upon glycerine agar-agar, either at the temperature of the room or at 37.5° Centigrade.

I have not as yet tried other culture media.

The growth is but a feeble one upon the surface of the blood serum, though such a marked change takes place in the condensation water; and in some lots of blood serum it will not grow upon the surface at all, although developing well in the water.

The bacterium varies in form according to the various conditions of its nutritive environment and the consequent rate of its development. The most constant and prevalent form is a short, fine bacillus with rounded or nearly square ends. Those parts of the culture, where the nutriment is apparently exhausted, show the same bacilli in short chains, longer bacilli, and bacilli much enlarged at one end or the middle, as if in preparation for spore formation.

Where the nutrient medium is fresh, the plant divides more rapidly and forms very short bacilli, and often even a pure micrococcus form. The latter too, is frequently seen forming chains of five or six. Chains are observed, made up partly of bacilli and partly of micrococci.

The micrococcus form is found, for the most part, in the early colonies at the upper part of the culture tube, where the nutrient medium retains its freshness by the constant draining away of the liquefied and exhausted portion. On the other hand, where this latter abounds, as in the sulci, and the pockets and condensation water, into which these drain, the bacilli greatly predominate, and the "balloon" forms appear.

Cover-glasses of the growth stain well, after a few second's exposure to Ziehl's carbolic acid Fuchsin solution.

I have repeatedly inoculated tubes from isolated colonies that manifestly grew from a single bacterium; and the resulting cultures have invariably shown all the forms enumerated above.

My opinion now is that my tubes contain but a single plant, which assumes different forms according to the various conditions of nutrition. The typical stages of its development being a coccus, which becomes a rod; and then a "balloon," the latter being either a spore (*dauerform*) or a degeneration form. It is, of course possible, however, that there may be two separate plants present, a very small micrococcus and a bacillus. Further investigations can alone decide this point, and until I have made such, I cannot speak decidedly as to the morphology of the germ.

[1] Forwarded from the Bacteriological Laboratory, Harvard Medical School, Boston, February 1, 1891.

CONCLUSION.

The object of this communication is simply to record these facts:

(1) That the germ of cow-pox is a bacterium.

(2) That it can be grown upon certain kinds of blood serum.

(3) That after an indefinite number of generations of such growth, it retains unimpaired its pathogenic properties.

Experimental science suffered a severe loss in the passing away of Stephen Crosby Martin on Sunday, November 5, 1893.

Dr. Martin was the second son of Henry Austin Martin (M.D., 1845), and graduated from the Harvard Medical School in 1874, becoming a Fellow of the Massachusetts Medical Society immediately afterwards. Having no especial taste for general practice, and guided by his father's interest in the propagation of vaccine virus, it was to this branch of medical work that his attention was particularly directed from the beginning of his medical life; and from this time he took entire charge of what has always been the best-known and most reliable source of vaccine virus in this country.

As it had been of the father, so it was the constant endeavor of the son, at all times and at any cost of energy and expense, to secure and take advantage of new or improved methods in the preparation of the virus sent out under his seal. Naturally, therefore, his interest was excited by, and his attention directed towards, the advances of the last ten years in the knowledge of the bacteria, for these advances pointed unmistakably towards a new field of investigation of the virus of vaccinia. All analogy showed that the active principle must be vital, and therefore subject to isolation and specific study; and that, these steps being accomplished, it might be possible to secure a growth in the laboratory that would serve the purpose of protection against small-pox, and that would at the same time be absolutely free from any possibility of contamination, or of producing such unfortunate results as have been reported after the employment of humanized virus.

Led by these considerations, and at an age when most men are content to go on in the lines of work already laid down for them, Dr. Martin became a student again, and took up the science of bacteriology in the Harvard Medical School. Entering the laboratory devoted to that branch of instruction early in the fall of 1888, and under the advice of the head of the department, he devoted an entire year to the study of the methods employed in general investigation before attempting to enter upon the special subject that interested him. Beginning upon this at last, his earnest and persistent work was rewarded with results of such importance that, by the advice of those specially interested, a preliminary communication was made to the Association of American Physicians at its meeting in Washington in May, 1890. (This communication is to be found upon page 181 of Volume V, of the Transactions of the Association, and is correct, with the exception of the date attached to the notes, which should be May 11, 1890, and *not* May 11, 1889, as printed.) After this communication, the work was prosecuted with unremitting vigor, until, in February, 1891, the accompanying statement was prepared and submitted to the Grocer's Company in London.

As will be seen — if the observations were correct, and with others made later — the whole chain of evidence was completed; that is to say, a pure culture of a specific micro-organism was obtained from ordinary vaccine virus; this culture was carried through an indefinite number of generations; inoculations with these pure cultures invariably produced typical vaccine vesicles in calves, and in some of the children experimented upon; and in one case of the latter, in which the experiment was tried, the child was refractory to inoculation with ordinary vaccine virus. From all the vesicles upon the calves, the typical organism could with certainty be isolated and cultivated. So much facility had Dr. Martin attained in the special manipulations necessary, that he could at any time, and with practical certainty, start a fresh culture from the calf.

Thus it will appear that, more than once, the complete result was obtained, the production of typical vaccine vesicles in human beings; but there was a marked difference in the certainty of the effects produced by the inoculation of pure cultures in human beings and in calves. In the former case, of the few experiments tried, fewer still showed any results; but in the latter the results were uniform and typical, and virus from vesicles thus produced was, if anything, more active and certain than that obtained in the ordinary way.

At no time did Dr. Martin receive aid, aside from suggestions as to methods, except in the settling of some of the problems connected with the biology of the organism discovered by him. This was from Dr. John Amory Jeffries, whose brilliant career was so suddenly cut short in the spring of 1892; and it was most assuredly Dr. Martin's wish that no final results of his work should appear without acknowledgment of this aid, covering some three months of the fall of 1890.

But just at this most important stage of the investigation — in the spring of 1891 — Dr. Martin's work was cut short by the death, under trying circumstances, of a brother; and his strength, never of the best, had not recovered from this shock before the appearance of the symptoms, in the fall of 1891, that produced constantly increasing pain and prostration, until his vitality was exhausted and his sufferings were terminated by death.

During this entire period, the sufferer never lost his courage nor the hope, and almost the expectation, of being able at last to take up and complete the work so successfully begun. Some months before his death, and when an operation had been decided upon, the result of which was necessarily in doubt, Dr. Martin wrote out full notes of all his work. These will furnish a most valuable contribution if they shall be edited and published.

It is as a tribute to the qualities displayed — to the persistency under discouragement, to the energy and determination to succeed — that these lines are written. Certainly every one brought in contact with him in the laboratory joins in all the words of praise for work done, and regrets for what was left undone, that can be put together, as well as in the deepest sympathy for the family deprived of such a member.

HAROLD CLARENCE ERNST.

FURTHER OBSERVATIONS ON REMOVAL OF THE STAPES.[1]

BY FREDERICK L. JACK, M.D., BOSTON, MASS.

SINCE bringing the subject of removal of the stapes for improvement of hearing to the consideration of the Society last year, the operation has been tried in thirty-two additional cases. These, together with the original series of sixteen, make forty-eight cases in all for observation and study. The results have been carefully noted, and care taken to have the tests in hearing as accurate as possible.

In reviewing the cases there is much to encourage the adoption of the procedure, but its clinical application will require modification. The new is always interesting, and the tendency is to urge one on; yet it has seemed best in so important a matter to advance slowly.

In bringing the subject before you this year, it is hoped that a report of the present condition of the first series may prove interesting, and that brief histories of a few subsequent cases, illustrating further some of the conditions met with, and suggesting problems still awaiting solution, will be profitable.

[1] Read before the American Otological Society, July 18, 1893.

Of the original sixteen cases, three were in active process of suppuration at the time of the operation; nine were the effects of chronic purulent inflammation. These ears, with one exception, have remained healed. There were three of otitis media insidiosa, and one of Ménière's disease.

Most of these cases have been seen once or twice during the year by members of the staff at the Infirmary, and nearly all have been again tested within two or three weeks by Dr. Crockett or myself. It is about one year since they were operated upon — time enough to form some idea as to the permanency of the results in hearing, and to note anatomical changes, if any, in cases where the oval niche was visible.

In a case of chronic suppurative inflammation of both middle ears, in which the right stapes was removed a year ago, the oval niche, one month afterwards, was found granular, a condition probably due to the neglect of the patient to continue treatment. The ear healed in a short time after removing a portion of the growths with forceps and making application of a saturated solution of copper. On July 8, 1893, examination of the right ear revealed a thin membrane over the oval niche. Ear perfectly dry. Hearing in the right better than in the left ear, which still continues to discharge. Before the operation the hearing was more acute in the left than right ear. Tests in hearing on July 8, 1893, as follows:

$$W = R\ \tfrac{3}{60},\ L\ \tfrac{3}{60}$$
$$V = R\ \tfrac{8}{25}\ \tfrac{30}{85},\ L\ \tfrac{1}{25}\ \tfrac{3}{85}$$
$$\text{F. C.}\ \tfrac{a}{b}\ \tfrac{c}{c},\ R\ \tfrac{10}{85}''\ \tfrac{30}{85}''$$

Hearing was practically the same as when tested immediately after the operation a year ago. This seemed rather surprising, considering the subsequent inflammation in the oval window, with every condition favorable for the occlusion of the opening by adhesion.

The wound in the drum in most cases was found cicatrized. In a number of cases where the drum, previous to operating, was wanting, as in the case just spoken of, a thin cicatricial membrane over the oval window could be distinctly seen.

A matter of considerable interest is the effect of removal on the labyrinth. The patients were closely questioned for any symptoms of vertigo, but it was found in one case only, that of a woman forty-seven years of age. Dizziness was, however, an old complaint with her, and was very likely due to dyspepsia. She volunteered the information that the trouble was less frequent of late than for a short time after the operation. In a few cases, vertigo, which was complained of before the operation, had entirely disappeared.

The influence of the operation upon subjective noises, judged by these cases, is uncertain. Many in whom tinnitus existed previous to the operation, have been entirely free from this annoying symptom for a year. The reverse, though, is true in a few cases, a slight noise being noticed now at times.

The improvement noted in hearing the tuning-fork, (Politzer) both by air and bone, was found essentially the same as when tested a year ago.

The test by König's rods showed in one case a slight gain of five thousand (5,000) vibrations per second; in another, the loss of the same. In one case the considerable gain of fifteen thousand (15,000) vibrations after the operation was still held.

The test for hearing the watch indicated in some cases a slight gain, in others a slight loss. In cases of slight loss for the watch and rods, this, of course, indicating a diminished perception for high tones; the hearing power for the voice was apparently increased. This peculiarity in the relation between hearing the voice and high tones is frequently found among deaf people.

We now come to the point of greatest importance, to the patient at least; namely, a report of the hearing power for the voice. In applying this test the same words were used in all cases, for, as shown by Wolf, the pitch of the tones of speech ranges from sixteen vibrations per second to four thousand thirty-two (4,032) vibrations, nearly eight octaves, and vowels are heard at a greater distance than consonants. The opposite ear was tightly plugged with cotton, and the finger of an assistant pressed firmly into the meatus. In those cases where the foot-plate remained, there was practically no change from preceding tests. On the other hand, where the oval window had been completely cleared the hearing was practically the same as found immediately after the operation.

In the only case at that time of removal from both ears, the hearing remained perfectly good for five months, and was then somewhat impaired after a severe head-cold which closed the Eustachian tubes and caused marked retraction of the drum membrane in the neighborhood of the oval niche. The drum returned to its normal position after inflation of both middle ears through the catheter, and hearing was thereby restored. This would seem to prove, as there was no stapes in either ear, that the obstruction to hearing was due to the drawing of the cicatricial membrane into the window. About four months ago, a triangular piece of membrane was removed, under cocaine, from one side in the upper posterior quadrant, with the object of contracting the cicatricial drum. By this it was hoped to counteract the tendency of the membrane to sink into the opening. This was partially, but not wholly, successful. This case was numbered XII, and briefly reported last year as one of progressive deafness from chronic non-suppurative inflammation (hypertrophic) of several years' duration. No history of otorrhœa, but a cicatrix was found over the head of the stapes on the left side. The hearing in the left ear before operation was as follows: whispered voice not heard; loud voice, four feet; watch, $\tfrac{2}{60}$; tuning-fork C, through the air 15″ by bone-conduction in the left ear; König's rods, 30,000. Operation under ether, June 26, 1892. Stapes removed.

On July 8, 1893, about one year after the operation, the hearing was better than immediately after: whispered voice, three feet; loud voice, 21 feet; watch, $\tfrac{1}{100}$; tuning-fork A, 13″ by bone-conduction in the right; König's rods, 35,000.

On September 27, 1892, at the patient's request, the right ear was operated upon, although the hearing was fair. Whispered voice, six inches; moderate voice, 10 feet; watch, c/60. Nine months afterwards (July 8, 1893): whispered voice, 10 feet; moderately loud, 32 feet; watch, $\tfrac{1}{100}$. More concisely given in table.

$$W = R\ \tfrac{1}{100},\ L\ \tfrac{1}{100}$$
$$V = R\ \tfrac{8}{25}\ \tfrac{32}{85},\ L\ \tfrac{10}{25}\ \tfrac{35}{85}$$
$$\text{F. A.}\ \tfrac{a}{b}\ \tfrac{c}{c} = R\ \tfrac{18}{15}'',\ L\ \tfrac{15}{15}''$$

Weber equal.

König's rods, 40,000 not heard.

The tests were made after the use of the catheter, and, for the reason already spoken of, show a little better results than before inflation. The ears have remained perfectly healed. No dizziness and less tinnitus than before. The special importance of this case lies in the fact that there is no stapes in either ear. The only plausible theory for the remarkable improvement is that there is unobstructed conduction of sound-waves through the oval window, and that there they fall upon a healthy perceiving apparatus beyond.

In general, the operation described last year is employed.[2] There are a few additional details however, worthy of brief notice. During the operation the patient's head must be perfectly still. To ensure this ether should be given. As suggested in the paper of last year, an exploratory opening (partial myringectomy) may be advisable, to reveal the presence of adhesions and to determine the mobility of the stapes. For this, the use of a solution of cocaine is often sufficient. It is important to carry the posterior and upper cut as close to the auditory ring as possible, for in not a few cases the joint is on a line with this ring, or is situated a little above it. The small flap in the drum may be put back in place, and is best kept in position by the paper dressing recommended by Dr. Blake. Removal of the bone is made difficult or impossible by firm anchylosis, usually of the foot-plate, or from high position of the oval window, or what is practically the same thing, a prominent auditory ring. The crura are sometimes very delicate — perhaps atrophied by pressure — and easily break on manipulation.

If in disarticulating the incudo-stapedial joint the incus is considerably displaced, its removal is advisable, particularly if it interferes with a view of the head of the stapes. The long process of the incus, when in place tends to prevent the subsequently healed membrane from sinking into the oval niche, a condition which in one case, previously mentioned, of double extraction of the stapes a year ago, is the only obstacle which prevents the patient from almost perfect hearing for the voice.

As regards the application of the operation to some of the different classes of ear disease.

In cases of otitis media suppurativa, after the otorrhœa has ceased, the incudo-stapedial joint is often firmly fixed by bands of adhesions. Briefly described, this condition of the bone offers a mechanical hindrance to the transmission of sound-waves to the vestibule. Relieving this obstruction by removal of the stirrup has increased the hearing power for the voice very materially.

Another set of cases is very similar pathologically, otitis catarrhalis adhæsiva. There is proliferation of tissues with anchylosis of the ossicular chain. Here again, good results by removal of the bone have been demonstrated.

There is a third class, otitis media insidiosa (sclerosis), in which it is generally believed that the anchylosis is not fibrous, but osseous (Tröltsch, Toynbee). This condition is usually characterized by a high degree of deafness and tinnitus. Appearances of the tympanum are either normal or nearly so. Judging from a few experiences with this troublesome condition, the region of the foot-plate would appear to be the principal seat of the bony anchylosis. I can only say in evidence of this that in most of these cases the foot-plate, in part or whole, remained behind after the removal of the head and crura. This accident is at present unavoidable and insurmountable. As might be expected, the improvement in hearing is not as great as in the other cases. Larger experience with this class of cases may, however, give better results.

The importance of a differential diagnosis before operating is of course great. To the tests already employed in diagnosis, the vibromata may form a useful addition in determining the existence or non-existence of fixation of the stapes. It seems hardly necessary to say that diseases of the internal ear are not affected.

The following cases recently operated on best illustrate several important points.

CASE I. Partial removal of the foot-plate with stapes-hook. Rupture of the basal membrane and outflow of the perilymph.

B. S., forty-eight years old. History of progressive deafness for fifteen years, the result of an insidious middle-ear inflammation (otitis media insidiosa). The tuning-fork test revealed increased bone-conduction on the left side. Hearing for the voice less than one-half for usual tones. The left ear was operated upon February 27, 1893. Dr. W. S. Bryant was present. The operation was performed in the usual way up to the point of extraction, when the crura broke close to their insertion to the base plate. At the point of fracture the bone was found unusually slender. The plate could now be clearly seen, and attempts to pick it out, both by Dr. Bryant and myself, were unsuccessful at first. The point selected was the posterior upper edge, where the thin plate, to a large extent, overlaps the margin of the oval niche. The point of the hook was carefully kept downwards, away from the facial nerve. So firmly fixed was the bone that the hook failed to engage, and it was only by fracturing the plate in the centre, where it seemed somewhat thin, that portions were removed. Immediately on breaking through, there was an outflow of fluid from the labyrinth. A few small pieces of the foot-plate were removed and the fluid absorbed by cotton. Patient remained in bed five days, and was made very dizzy and nauseated on raising her head from the pillow. Hearing a little better than before the operation. In two weeks patient returned home. Hearing good, a little dizzy on turning suddenly, no nausea. I have recently heard that the vertigo disappeared shortly after her return home, that the hearing was as good as before the operation, and the ear had given no trouble. The oval window in this case was unusually large and shallow, and the foot-plate could be easily seen. The region of the Fallopian canal was carefully avoided.

The escape of perilymph then does not necessarily destroy the hearing. This point had been demonstrated on pigeons by Kessel. It was possible to demonstrate the presence of labyrinth fluid in but a very few cases. The slight evidence gained from these cases seems to show that the hearing was much better where the basal membrane was not ruptured by the operation. The margins of the fenestra ovalis and articulating surface of the foot-plate are encircled by a hyaline cartilage, as shown by the investigations of Toynbee, Tröltsch, Rüdinger and others. These conditions, when not too far destroyed by pathological changes, would admit of removal of the foot-plate without rupture of the membrane beneath.

[2] Transactions of the American Otological Society, 1892.

Besides firm fixation of the foot-plate, we have anchylosis of the crura of the stapes with the niche of the fenestra ovalis described by Politzer. In this class of cases the operation has met with the best results. Mobilization of the stapes has probably also met with its best results here. This proliferation of tissue is naturally more abundant in ears having passed through a suppurative process, although in the non-suppurative cases the stapes is often found firmly fixed.

Case II. Fixation of the stapes, result of chronic suppurative inflammation. Removal of the bone followed by marked improvement in hearing.

B. D., fifty-two years old. Hearing nearly destroyed, the result of long-continued suppurative otitis media. Examination on April 3, 1893, revealed extensive destruction in the right membrane tympani. The left membrane had been entirely destroyed with the exception of a very narrow edge at the insertion in the annulus tympanicus. The only ossicle that could be made out was the stapes, the head of which was firmly bound by adhesions. There was a slight mucopurulent discharge from the ear. There was no hearing in the right ear, it being totally deaf for all sounds through the air. The tuning-fork C was not heard at all by bone-conduction. Upon the left side a loud voice could be heard through a conversation-tube. Bone-conduction good.

Considering the fact that the stapes was firmly anchylosed and that the bone-conduction was normal, the conditions seemed favorable for operative interference. The adhesions around the head were divided and the knife carried a little way into the niche before the bone was sufficiently movable to attempt its extraction. Traction on the bone produced some dizziness which was quite marked on its removal. Immediately after the operation the ordinary voice could be distinguished at four feet. This marked improvement continued for two days to the patient's delight, when inflammatory reaction set in and the hearing steadily decreased. While this lasted the hearing was very bad. The ear is now healed and the hearing is improving. At present it is:

Watch not heard on contact.
$V = \frac{1}{5}{}_{5}$; T. F. C. $\frac{a\ c}{b\ c}\ \frac{0''}{14}$
Weber not heard.

The results in this case were excellent up to the time of reaction, which entirely closed the oval niche with swollen mucous membrane. Reaction has been the exception, and was in this case very likely due to the presence of a purulent discharge in the ear.

The next case, one of those forlorn hopes for which as little might be expected from removal of the stapes as from any other known means of treatment, is briefly reported.

Case III. Deaf mute. Double extraction of the stapes.

Miss G., of Pittsburg, nineteen years old, recently a scholar at Clarke Institution for deaf mutes. Hearing began rapidly to fail about ten years ago. Family history good, and has always enjoyed good health. In December, 1892, when I saw the patient, both drum membranes were nearly normal in color and position. The long process of the incus was visible in both ears. No hearing for any sounds by air or by means of the conversation-tube. Tuning-fork said to have been heard through the cranial bones. On December 29th the operation was performed on the right ear in the usual way, under ether. Little resistance was encountered in the removal. There was no dizziness and the patient was up and about on the next morning. No reaction. The hearing was improved, isolated words and the tuning-fork heard through the conversation-tube. Encouraged by this slight gain, and at the patient's request, the left ear was operated upon two weeks later. Some difficulty was met with in dividing the incudo-stapedial joint, caused by a rather long bony projection on the tip of the long process of the incus. As before, there was no reaction or discomfort other than usually attends the administration of ether. The hearing was not improved. A loud noise through the otophone caused a slight pain for a day or two. A lesion of the auditory nerve or sound-perceiving apparatus was strongly suggested by the tests made before the operation, and it was confirmed afterwards by the results.

In reviewing the year's work the following conclusions are drawn:

(1) The operation is followed by the best results in the class of cases where, from the increase of tissue, the effects of suppuration or hypertrophic inflammation, the stapes offers an obstruction to sound-waves; by its removal the hearing is improved. The results in cases of otitis media chronica insidiosa on account of failure to extract the foot-plate are not encouraging.

(2) Inflammatory reaction is unusual and followed by no bad results.

(3) The hearing is not necessarily impaired by the subsequent growth of a thin cicatricial membrane over the fenestral niche.

(4) Some cases of tinnitus and aural vertigo are relieved, and there is little chance of causing permanent vertigo in cases where it had not previously existed.

(5) It rarely happens that a patient improves for all tones. Improvement in hearing the human voice is out of proportion to the improvement for other sounds, and the reverse sometimes occurs.

(6) Failure in some cases may be due to hæmorrhage into the labyrinth at the time of the operation. It is believed to be a rare complication, but was thought to have occurred in one or two cases.

(7) In removing carious ossicles, the stapes if found diseased should also be removed.

Clinical Department.

A CASE OF SUDDEN DEATH IN AN INEBRIATE.

BY E. P. HURD, M.D., NEWBURYPORT.
Medical Examiner, Third Essex District.

Frederick Frederickson, a Norwegian, aged forty years, was admitted to the "Houston Institute," Newburyport (an institute for the cure of inebriety by a secret method), July 4, 1893. There is nothing in his antecedents to be recorded except that he was of a healthy, long-lived family, and had never been sick prior to his entering the "Institute." He had been intemperate for twelve years, taking a variable number of drinks of hard liquor and of beer every day, and indulging in frequent sprees, to the impoverishment of himself and family. He was also an inveterate smoker.

He was examined at the Institute by the attending physician, who noted nothing pathological except a weak, intermittent pulse and heart (supposed tobacco heart). He was placed under the usual treatment, alcohol and tobacco being soon completely withdrawn, and various tonics given in their place.

August 7th, he left the Institute "cured," but with more or less pain and discomfort in the region of the heart; there was some shortness of breath and complete inability for exertion; he was unable to work at his trade of silversmith.

The night of the 17th he was unable to sleep on account of severe pain, of a stabbing, burning nature, in the region of the heart, and general restlessness and distress. In the morning, he went to the Institute for relief; became rapidly worse, asked to be taken to his home, not more than a block distant, and died on the way.

This was the second sudden death occurring among the patients of this Institute within a week.

The directors of the "Houston Cure Company," realizing the unfavorable light in which the Institute was placed, and believing that the treatment there given was not responsible for these deaths, desired to vindicate themselves before the public by procuring an autopsy on Frederickson. There was, in fact, no little excitement at the North End by these two sudden deaths, both happening within three days.[1]

On requisition of the mayor, I performed an autopsy on the afternoon of the 18th; Drs. F. A. Howe and C. W. Stiles were present.

The immediate cause of death was fatty degeneration of the heart. This did not appear to be dependent on atheroma or occlusion of the coronaries, which seemed everywhere sound and competent, though embedded in an abnormal amount of fat. In places, as in the wall of the left ventricle below the auriculo-ventricular furrow and at the apex, the muscular tissue was entirely replaced by adipose, which could be easily torn through by the finger-nail or handle of the scalpel down to the endocardium. There was everywhere a great increase of the normal fatty tissue.

The solid organs of the abdomen were hyperæmic and more or less altered. The spleen was congested and softened; its pulp the consistence of *bouillie*. The liver was hypertrophied, filling the whole of the left hypochoudrium, encroaching on the stomach and pressing upwards the diaphragm, thereby embarrassing the heart; it was firm, hard, and cut with great resistance, as if cirrhosed. The kidneys were enlarged and smooth; capsule opaque, injected and easily detached. The parenchyma was injected, and a copious bloody exudation followed section. Both cortical and medullary portions were swollen, of dark-brown color, and soft; in fact, any difference existing between these portions was hardly to be distinguished. These organs were apparently in a state of sub-acute inflammation. The stomach was empty. This organ was not attentively examined.

The autopsy exonerated the Houston Institute, by showing that this man died of fatty disease of the heart and other lesions, in all likelihood the result of chronic poisoning by alcohol.

Primary fatty degeneration of the heart found apart from valvular lesions or marked atheromatous changes in the arteries, in a young or middle-aged person with no known hereditary predisposition or diathesis, is strongly suggestive of chronic alcoholism. In fact, it is regarded by some authorities as almost peculiar to this form of poisoning.

Pains similar to those of angina pectoris — in fact, so markedly resembling typical angina pectoris as to be easily confounded with it — may occur in other conditions besides coronary stenosis, as in the case above reported.

Doubtless inebriates in the condition of Frederickson, are not fit subjects for Houston or other "institutes" for the cure of inebriety, and will live longer on a moderate allowance of alcohol. There was, however, nothing in the antecedent history of this man to indicate that he was not a fit subject for the abstinence treatment, and it is impossible to tell how much the morbidity may have increased during the five weeks that he was at the Institute.

[1] The first case was that of John L. Jones, an epileptic who died suddenly, during the period of withdrawal, by a convulsion.

AN EPIDEMIC OF SCARLET FEVER; ETIOLOGY.

BY DAVID DANA SPEAR, A.M., M.D., FREEPORT, ME.

ON the 21st of September there appeared in my field of practice an epidemic of scarlet fever, which in one week's time assumed the proportion of twenty-five cases, mild in character but well marked, going through the several stages in a typical manner, having the rash, the high fever, the angina, and finally exfoliation of the derma.

The interesting point in all these was the inception. All of my patients were attendants at one and the same primary school, in which there were two school-rooms — one on the first and one on the second floor. All of the cases occurred from the school-room on the first or lower floor. All of the cases occurred from eight to eleven days after the opening of the fall term.

The school-room had just undergone a thorough overhauling and repairing. Many of the old benches had been taken up; quite a large portion of the old floor had been taken out and replaced by new floor-boards; a good deal of dust was disturbed and let loose in the room, which, however, was swept and painted, and the walls tinted, before the opening of the school.

Some two years ago several cases of this same disease broke out in the same room; and every three or four years, over the space of some fifteen or more years, a case or two of scarlet fever has appeared among the attendants at this school.

In 1875, there very suddenly appeared in this village a large number of cases of scarlet fever; and during that fall and winter a large number of scholars from this school were attacked. I treated ninety-eight cases. An account of this epidemic was given in the *Medical Record* of New York (Vol. X, page 782, for 1875). In that article the conclusions were drawn, (1) that in one case it was barely possible that the disease occurred independently; (2) that an unaffected person may be the carrier of the disease over many miles; (3) that the character of the disease was not determined by any peculiar feature of the disease from which one becomes infected, but rather by some existing condition in the person attacked.

The additional conclusions from this present epidemic seem to be that the contagion of scarlet fever can be kept alive for a long space of time. I have

no doubt but that the school-room from which this present epidemic started, has preserved the germs for infection since September of 1874.

Medical Progress.

RECENT PROGRESS IN GENITO-URINARY SURGERY.

BY FRANCIS S. WATSON, M.D.

RESECTIONS OF THE KIDNEY.

Kummel [1] publishes an interesting article on the subject of "Resections of the Kidney," in which, after referring to some experimental researches with regard to resections of the kidney in animals, he describes his own experience of three such operations in human subjects — noting similar operations already performed by Czerny in 1889, and by Waitz in the same year.

Of the writer's three patients, the first was a woman, aged forty-one, from whose right kidney he removed a stone of the size of a walnut. Finding a portion of the kidney practically destroyed by multiple abscesses, he removed that part of the organ. The wound made in the kidney was only partially sutured — that part of it left open was sewed to the skin — and packed with iodoform gauze. The wounds healed completely, though slowly; and the patient made an excellent recovery.

The second case was a male, aged fifty-four. The chief symptom was pain and tenderness in the region of the right kidney, and hæmaturia. An incision was made parallel with the costal arch. On exposing the kidney there was seen at its upper end a yellowish area about the size of a walnut. This, together with a wedge-shaped section of the kidney, was excised. Sutures failed to control the hæmorrhage. The kidney wound was thereupon fixed to the outer wound, and packed with gauze. The wound healed rapidly. The patient left the hospital at the end of three weeks, apparently well. Six weeks later he returned. A tumor of the bladder was then discovered. This was excised through a suprapubic cystotomy. Rapid healing and recovery followed. The wound made in the bladder by the excision was sutured. Ten weeks after the last operation the patient died of pneumonia and empyema.

The third case was one of echinococcus of the kidney, in a woman of thirty-four. In this case the kidney was reached by a similar incision to that practised in the two preceding cases. The kidney was greatly enlarged. Numerous echinococcus cysts were found, and freely incised. The cysts were then excised, together with portions of the kidney adjacent, by wedge-shaped incisions. The sutures failed to control the hæmorrhage, as in the second case; and the kidney was, as in that instance, fixed to the outer wound and packed with iodoform gauze. About one-half the kidney was removed, the pelvis not being injured. This patient made a good recovery.

TUMORS OF THE BLADDER.

Fenwick [2] reports the results of his observations and operations upon thirty-two cases of bladder tumors, in all but two of which tumors were removed.

In three cases the tumors were reached by the perineal incision, in nineteen by the suprapubic route, and in eight through the dilated female urethra.

Only two deaths occurred as the result of operation. In both, death was due to suppression of urine; and in both the tumors were small papillomata. Both patients had had attacks of influenza not long before the operations.

In one of the other patients there has been no evidence of recurrence, more than four years having elapsed since operation. All the other patients who had benign tumors were alive and well at the date of the report, four years or less having passed since the operation.

In one case of carcinoma, recurrence occurred three months after thorough removal; and in four other cases recurrence is noted.

Early operation is urged by Fenwick in all cases of benign growths, and also the benefits to be derived from the use of the cystoscope, in skilled hands, in making diagnoses.

SOME NOTABLE CASES AND OPERATIONS.

(*a*) Cabot [3] reports a case of "Calculous Pyelitis, with Complete Suppression of Urine for Seven Days: Relieved by Operation," as follows:

The history pointed to the previous destruction of one kidney by calculous disease and to the plugging of the ureter of the other kidney by a calculus. In spite of the long-continued anuria (seven days), the patient had had no uræmic symptoms until the last day. Hoping to find and remove the obstruction in the ureter, Cabot performed a median abdominal section, the incision being made between the symphisis pubis and the umbilicus. The right kidney was found to be enlarged to thrice its natural size. The left kidney was normal in size. No stone could be felt in either of the kidneys or ureters. The left kidney was then exposed by an incision in the left loin. Careful bimanual palpation of the left kidney — one hand being in the abdomen, and the other in the wound in the back — failed to reveal any stone. The operation was then abandoned. The abdominal wound was sutured throughout; that in the loin was partially closed, and drained. Three hours later a catheter was passed into the bladder, and thirty-seven ounces of urine were evacuated from it. Polyuria followed for some days, and then gradually ceased. Convalescence was satisfactory. A fortnight after the operation some grains of calcareous matter were washed out of the bladder. Cabot attributes the dislodgement of the obstructing calculus from the left ureter to the accidental kneading of the kidney which occurred while endeavoring to feel the stone by means of his bimanual examination through the wound.

(*b*) Milton [4] reports the "Extraction by Laparotomy from the Human Bladder of the Largest Stone ever recorded as successfully removed."

This stone weighed thirty-four and one-half ounces. The patient was an Egyptian, aged sixty. A mass extending to the umbilicus could be felt, and a sound passed into the bladder came at once upon a stone. An abdominal incision was carried from the umbilicus to the pubes, exposing the anterior surface of the bladder. An attempt was made to strip the peritoneum from the anterior face of the bladder; but it failed.

[1] Arch. für Klin. Chir., Bd. lxiv, 2d Heft., p. 310, 1893.
[2] British Medical Journal, June 10, 1893.
[3] Boston Medical and Surgical Journal, August 31, 1893.
[4] Lancet, September 16, 1893, p. 667.

Thereupon the peritoneum was incised freely. The bladder was next incised, from its summit to its neck anteriorly — its peritoneal covering being, of course, divided. After making two lateral wounds in the course of the first bladder incision, the stone could be delivered by upward pressure exerted by two fingers in the rectum. The bladder wound was closed, except for a small opening at its lower part, with silk-worm-gut sutures; the peritoneum with catgut, and the outer wound, except at its lower angle, with silver wire. There was no peritoneal reaction afterward; and the patient recovered from the operation, but died about two months later. The autopsy showed advanced disease of both kidneys. The largest diameter of the stone was six inches.

This case is especially interesting in view of the recent advocacy from various quarters, of opening the bladder through its serous surface as well as below, in order to get more room to work in, in certain difficult cases.

(*c*) Dittel has recently reported a case of total extirpation of the prostate, with recovery, in a man of thirty-two, who had been suffering from severe hæmaturia. A suprapubic cystotomy showed the source of the bleeding to be from a tumor (afterwards shown to be a fibroma) springing from the prostate. The growth was thought to be too large to allow of satisfactory removal through the suprapubic wound, and it was reached from below by an incision from the coccyx to the anus, separating the rectum from its attachments and then exposing the prostate by an oval incision. The urethra and bladder were not opened in this operation. Through this opening the prostate was wholly removed. The bladder was drained through the urethra, and the wound packed with iodoform gauze. The patient made a perfectly satisfactory recovery.

SURGICAL INTERFERENCE IN CASES OF RENAL TUBERCULOSIS.

In our last report we included a summary of an article of Facklam's,[5] upon the question of surgical interference in cases of renal tuberculosis.

In the September number (1893) of the *Annales des Maladies des Organes Genito-Urinaries*, is published a short critical review of the same subject by Dr. E. Vigneron. Dr. Vigneron points out that surgical interference in cases of renal tuberculosis dates back only twenty-five years, and that the subject has been exhaustively treated only since 1890. He refers to the articles of Tuffier, Facklam and Heydenreich as the most recent and important contributions to the subject; and he compares his own conclusions — arrived at independently — with those of the other surgeons just named, as follows:

NEPHROTOMY IN RENAL TUBERCULOSIS.

Facklam: 36 cases, general mortality 33.33%, operative mortality, 13.8%.

Vigneron: 54 cases, general mortality 38.18%, operative mortality, 12.7%.

Vigneron advises against early surgical interference in renal tuberculosis, following in this respect the teachings of Professor Guyon.

His conclusions in regard to nephrotomy are, that the operation affords relief in many cases, and that radical cure may follow its performance in some rare instances. In this connection, he cites the case of a child upon whom Guyon performed a nephrotomy six months before, and whose general and local conditions showed such remarkable improvement that a permanent cure is looked for.

He considers nephrotomy indicated when the patient is suffering, is losing ground, and when both kidneys are affected.

The success of the operation depends upon the manner of its performance. It is essential to open freely *all* pus cavities, and to remove, so far as possible, all cheesy masses; to drain freely; and to suture the edges of the renal wound to the lumbar incision, so as to allow the interior of the kidney to be easily cleansed and dressed. If these steps are not taken, the operation is useless.

The following figures are given in regard to nephrectomies:

(1) ABDOMINAL.

Tuffier	11 cases,	mortality, 26.3%
Facklam	13 "	" 30.0%
Vigneron	19 "	" 26.84%

(2) LUMBAR.

Tuffier	45 cases,	mortality, 28.2%
Facklam	75 "	" 28%
Vigneron (primary)	65 "	" 40%
Vigneron (secondary)	20 "	" 35%

Vigneron accounts for the higher rate of mortality in the series of cases which he has collected by the fact that it includes a larger number of cases operated on in the earlier days of nephrectomy, when the technique of the operation was less perfect.

The author urges secondary nephrectomy rather than primary, and considers that if it is so done the mortality is much less than with primary nephrectomy. The best time to choose is a few weeks after a nephrotomy, as soon as the general condition of the patient has improved.

Nephrectomy should be considered only in those cases in which the disease is unilateral. Vigneron considers that renal palpation and the endoscope will, in most cases, make a decision in this respect perfectly possible.

[5] Langenbeck's Arch. für Klin. Chir., Bd. xlv, p. 715, 1893.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY.

JAMES J. MINOT, M.D., SECRETARY.

STATED Meeting, Saturday, October 28, 1893, Dr. A. L. Mason in the chair.

DR. C. F. WITHINGTON read a paper entitled

MEDICAL TEACHING IN GERMANY.[1]

DR. J. C. WARREN: My experience dates back twenty-five years, and it is interesting to me to hear what is going on abroad at present in medical teaching, and to see what kind of impression it makes upon my mind as compared with what the teaching of that time made. Twenty-five years ago I went abroad as a graduate of the medical system of teaching in this country, and I had that as a standard to gauge what I saw there. In making a comparison to-day, I feel that there is not that tremendous superiority which existed at that time. At about that period there was a grand exodus from this country to certain parts of Europe. It seems to have gone by generations. At the beginning of the century Edinburgh or London

[1] See page 585 of the Journal.

was the centre of medical learning. During the first quarter of the century Paris was the great centre of medical education, and our fathers went there. About the time when older members of the present generation began to finish their medical education there was an increased exodus to Europe from this country, and it was stimulated by the rising reputation of the German universities. That set of men brought back to this country what there was of best in the methods of teaching in Germany at that time. The Germans always used to say to me, as they did to other Americans at that time, that the Americans were very practical; and I think we fully deserved that opinion, because we assimilated with our usual adaptability all the good things we found, and brought them back and grafted them on American soil; and I think we have now the product, I will not say the finished product, but a pretty thoroughly elaborated product, to compare with the mother universities. I feel that we can look perhaps with a great deal of pride upon the result. I do not think we appreciate what strides the best schools in this country have made in the progress of medical education. I had it impressed very strongly upon me at the Pan-American Medical Congress in Washington this summer, when the guests from the southern part of this hemisphere were invited to see what we were able to show them in the United States in the way of medical sciences and of medical education. It came over me then that insensibly during this period of time the best schools in this country have been improving wonderfully. Among those schools I may mention Harvard, the College of Physicians and Surgeons in New York, the University of Pennsylvania, Johns Hopkins; and I dare say there are others. I had this also impressed upon me, that the institutions I have named are pretty universally conceded in this country to be the leading institutions, and are looked upon with pride not only by the graduates of those institutions, but also by the medical profession at large of this country. They take a just pride in the progress those institutions have made.

The question comes, How far have we developed? Have we the right to consider ourselves equal to either of the three geographical centres of learning which I have spoken of? There is, I think, very little doubt that we are fully equal, if not superior, in our methods of teaching to the universities in Great Britain; and I find that this is a pretty common opinion amongst those who are familiar with the subject. The examinations which are required of one who wishes to obtain a license to practise in Great Britain are higher, perhaps, than in most of the medical schools in this country, but we ought to remember that they do not represent the teaching that is done there. The examinations are far above the teaching that is given in the English medical schools. They have to be prepared for especially by a sort of cramming process. There are coachers who prepare one for medical examinations in Great Britain. We all know in a general way that the medical schools of London are composed of the staffs of the various hospitals. They have magnificent hospitals in London, magnificent material, but their organization must necessarily be far below that of such a great university as Dr. Withington has sketched. There are no such great laboratories and places for investigation, and no such massing together of great names. The teachers in London are scattered; their work is not in unison; their separate schools divide up into a great number of little schools; and I do not believe the instruction is as good as it would be if in the hands of one or two great universities. To be sure, there is a great university at Edinburgh that has a far larger number of students than any in this country. The same principle, however, I think, prevails there; and I doubt if the average student gets anything like as systematic an education as in the best schools of America. In regard to Paris, I do not know how much the system has changed under the republican government. I doubt if there has been any change. I must say the system which I saw there was very unsatisfactory indeed. The opportunities for an advanced student were far inferior to those which existed in Germany. There are certain special branches in certain parts of France which are rich in splendid material, and I have no doubt, if a person wishes to study a certain subject, he might go to certain parts of France and have opportunities that, perhaps, might not be afforded in Boston or in New York even. We all bow down still to the power of German science. We are still under its sway. That is the Mecca of to-day, but I am not sure that it is going to remain so for any great length of time. I doubt, and I think Dr. Withington's statement confirms my doubt, whether the average student really gets, after all, a better education during his four years in Berlin than he gets in Boston or in Philadelphia. I think Americans, with their practical methods, have wonderfully systematized the teaching in all the specialties of medicine, and also have wonderfully improved the preliminary instruction, the laboratory work; and I feel pretty confident that the standard which we provide for the average student of to-day is nearly of as high quality. When we come to the advanced instruction, we have as yet hardly any centre which can compare with a great centre like Berlin, where there are so many brilliant scientific lights still presided over by the genius of Virchow, giving to it a prestige which he is able to keep up to its present point of greatness; and I have no doubt that in certain branches of medical science it is far ahead of any other part of the world, but I should not say it was in all. I should not wish to particularize, partly because I do not know. I think there is little doubt that we are gradually equalling them in many departments; I do not see why, with the phenomenal increase of this country in material prosperity, we should not be able to surpass them in the beginning of another century; and I do not think it is being too enthusiastic to predict that the early part of another century will find the centre of medical education in an entirely different quarter of the globe from what it has been in before.

Dr. F. C. Shattuck: I am very glad to have heard Dr. Withington's interesting and valuable paper. It is profitable for us now and then to take account of stock, as it were, to see where we are absolutely and relatively to those to whom we have been accustomed to look up and to whom we still look up. In so doing it seems to me that we can fairly feel encouragement. There has, of course, been advance on the other side of the water with the advance in knowledge. With this advance we have kept apace, but we have also greatly improved our methods of and facilities for instruction, and we note a very real increase in what is demanded of those entering medical practice. Formerly it was impossible to get a really good medical education in this country, and the attainments and achievements of

many Americans in medicine and surgery during the early years of the century are evidence of American intelligence and of the practical turn of mind of which Dr. Warren speaks. The result is in striking contrast with the paucity of means. At that time a few men went abroad for their whole medical education. Gradually many began to go for clinical advantages, as medical education here was chiefly a matter of didactic lectures, and the only chance for clinical work was in the private practice of the preceptor. Hospitals were small, as was the number of those requiring hospital care, and these hospitals were not intimately connected with medical schools. Ample clinical facilities are now offered in this country in many schools, and the rapid development of laboratories of all kinds is meeting the demand. I was glad to hear Dr. Withington say that, in his judgment, the advantages of Europe to-day are rather for practitioners than for less advanced students. I was somewhat struck to-day by a conversation with a very excellent hospital interne. I asked him about his plans for the future, whether he should go abroad, etc. He said he expected to go, but not to study medicine, as it seemed to him that he could get everything here if he went to work in the right way. I do not mean to say that I entirely endorse this opinion, but I am sure that he would not have spoken so even ten years ago. With reference to clinical instruction, I was much interested in what Dr. Withington said about the methods of undergraduate teaching pursued in the German universities, the predigested pabulum given to the students, the limited opportunity to train their powers of observation. This seems to me a serious defect. The English schools have their defects, as Dr. Warren has pointed out, but they have one great merit. The hospitals and schools being most intimately associated, as they are, every student can and must serve terms as clinical clerk and dresser in the wards, thus coming into close contact with the disease. It is to be hoped that clinical teaching in this country will develop along English rather than German lines, though we should aim to adopt what is best in both.

DR. D. W. CHEEVER: I should like to say a word, principally of retrospect. I think it is, as Dr. Shattuck has said, very much to the credit of American life and American institutions that in the early days of our country, after the Declaration of Independence, for the first twenty-five or thirty years, so many men of distinction in medicine and surgery did arise in this crude region where there were no opportunities, where the doctor had to make his own clinic, where he had to seek with great peril for every anatomical research, and where he had to develop entirely the characteristic of self-reliance in practice, and especially in surgery. Some noted things were done in surgery in the country fifty and seventy-five years ago, which have never been surpassed; so also some discoveries were made in medicine. At that time it was the exception for any one to have the means to go to Europe to study; and I fancy that those who studied with Abernethy and Sir Astley Cooper could be counted on the fingers' ends. Certainly I recall only two or three gentlemen in Philadelphia and Boston who came back after the facilities and the advantages of foreign study; and they easily took the first place in this continent, and carried on the advance of medical knowledge. I belong myself to that period which studied in France. What I had not learned in Boston I got in Paris. I lived there some length of time. At that time the advantages there were these: immense anatomical material (which was very scanty here), so that there one could study anatomy at will; in addition to that (and which grew out of it), very fine instruction, in operative surgery. The French had easily surpassed others for a good while in mechanical dexterity in surgery; and the opportunity for operative courses in Paris was enormous. In fact, it was only limited by the purse of the individual; and even so, the expense was not very great. In addition to that there were great clinical facilities, of which there were absolutely none in Boston except those afforded by the Massachusetts General Hospital, which was then much smaller than now. Clinical teaching in the amphitheatre in the course of operations was almost unknown at the time I was a student. Very little was said. A thing was said to be a cancer and was cut out, and a limb said to be crushed and cut off; but no amount of teaching in explaining the details of operation. Of course, the contrast when I got to Paris was enormous in the amount of clinical material and in the enthusiasm of teaching. But the great fault of Paris at that time, and I am sure that it is still so, was that the facilities were scattered — the hospitals miles apart, the great men scattered about in different hospitals. You had no concentration of opportunities. You were obliged to go a great distance to see skin diseases, another great distance to see diseases of women, another great distance to see surgery; you wasted time in locomotion and fatigue. It has always seemed to me with regard to the English schools, having twenty years afterward visited London and seen some of the best men there, that wherein they excelled was in individual teaching. You get individual teaching in England. I dare say you get it in Edinburgh. You get individual teaching from the fact that the schools are small; you are in close contact with the teachers, and have practically clinical instruction very much as if you were with a single practitioner and seeing his cases and seeing all his work. The great loss of time, however, in London to the stranger is in the fact that the hospitals are scattered, and there is no great centre as there is in Vienna and Berlin; but in those two or three great cities the advantages must be unequalled for saving time and for seeing everything, and for finding everything you want in the same place. Now, with reference to Boston, I, of course, share with others in the appreciation of the fact that we have improved a good deal in medical teaching; and I think one reason why we are advancing so fast in clinical facilities is from the change in our population. We get an immense foreign population of the poorer class. They go to hospitals, submit to hospital discipline, are less fastidious about being shown and being made clinical material of. There is less prejudice against hospitals and autopsies than formerly. At the City Hospital there are many more autopsies than formerly, and we have an immense *clientèle* to draw from. The change in the language and habits of these people is enormous. The institution has become practically polyglot; you need five or six languages to know what you are about. This class of people — comprising Swedes, Italians, Russian Jews, Poles — are poor people; they seek hospitals. This, I think, is why the City Hospital has grown out of proportion to the city; and is becoming, perhaps, a large burden upon the tax-payers. But this is going to give us precisely those opportunities for

concentrated clinical instruction which I think will end in making Boston, by and by, a metropolitan centre for medical knowledge.

DR. J. C. WHITE: I have listened to the paper with a good deal of interest. I suppose Dr. Withington's remarks will apply chiefly to graduates who go abroad to study. I think we sometimes talk in an unwarranted manner of foreign schools, when our personal experience is chiefly limited to the graduate courses, which are given at them. For our clinical teaching at home we have good hospitals, and those hospitals have good staffs, which are largely composed of teachers in the Medical School, but the remarks that have been quoted here as coming from young men, apply to those favored ones only who receive hospital appointments, but these are exceptional instances. The great majority of our students do not have such facilities at all, and they will not get them in my opinion until schools have their own hospitals and can apportion the term of interne service to every student fairly and evenly. Our hospitals now give a few students eighteen months to two years of such advantage. That same period might be divided among four students with great advantage to the class as a whole, that is, four times as many students could be receiving proper education in the hospitals. In other words, it is the managers of the hospitals that control the time of service of students, it is not under the control of the schools at all. The few men who have these privileges get advantages they could not get in the same time abroad it is true, yet that is no way to measure the clinical teaching that every student receives here.

I do not wholly agree with what Dr. Warren said with regard to the French school at present, I think it has grown immensely within the last few years, in many ways. It has given up its old method of complete satisfaction with itself which the Vienna school still largely retains. The latter can be said to be scarcely growing at all in some ways. The reason is that the French teachers no longer look upon French medicine as a national school by itself. It is medicine in general which they are studying, and some of the greatest teachers in France at this time are going to school; having their laboratories where they work and teach their students every day. The most notable feature in foreign schools at the present time is this great change that has taken place in the method of their teaching; the renunciation of sectional doctrines, the cultivation of a broader, international spirit.

DR. E. W. CUSHING: It seems to me that Dr. Withington's paper, in the tone of it, hardly does justice to the spirit in which medicine is studied and taught in Germany and in Berlin. I have nothing to say in regard to the methods of undergraduate study as they are there and here. My education in America was many years ago. All the more complete part of my education I got in Germany. A system must be judged somewhat by its fruits. Whether the Gymnasium or the Realschule is the best training for students is to be seen by the clinical teaching of the foremost men that grow out of it; and Germany can show that that is a good way to breed great teachers and students and workers. Leaving out of consideration the great teachers, I have noticed on many occasions that on almost any subject connected with medicine there was a certain profundity of erudition, a certain thoroughness of training in students, both in Germany and in France for that matter, training in the details and fundamentals which did not seem to obtain in this country. The main difference, however, in the facilities for studying in Germany and here, is in a system which does not obtain to any great extent in this country, and I think could well be introduced, although I am not posted particularly in medical teaching, that is, that the students can go to whatever university they like and have their time credited. If a student in Berlin thinks he cannot get enough clinical material, and wants to go to Vienna, that time is credited. In that way he can pick out his teacher and his place of living, spending his four years to his own best advantage. Also there is a very elaborate system by which the teachers are moved about. When I was in Berlin, we will say in 1885, Schroeder had an assistant who was then completing his term of five years; then he became professor in Halle, then in Göttingen, now he is professor at Würzburg, and finally he may get back to Berlin. That is the only way in which a clinical teacher gets ahead; and all the best physicians finally get back to Berlin, whereas a man who will not leave Berlin and devote his life to be a teacher, will not get to be professor. In that way the government of the great universities have the pick of the whole country, and there is a regular rotation by which a man starts in life with the idea of being a teacher. The government gives recognition of that spirit, encourages scientific research. After the last French war, when Berlin was established as capital of the German Empire, the government tried to make that the centre of the empire and of the world, if possible; to supplant Vienna and have Berlin the intellectual head of the kingdom; to draw the educated youth of the country to that place, and not by force, but in such a manner that no professional man could feel that he could afford to enter on his profession without going to Berlin. To that end vast sums were spent in building the finest hospitals of the world and in equipping and supporting them, as a political measure and as a measure of aggrandizing the new capital. I have just had an opportunity of going about to see the hospitals of this country; and I am free to say there is no such hospital in this country as the new one in Berlin, Am Urban. The government and society protects and respects a man as a teacher apart from his making any money out of his position; and although that feeling is growing in this country, and must grow a good deal before it will be comfortable for a medical man to devote himself to science as apart from money making. If he tries to devote himself to science, some older and shrewder professional friend comes along and says, "Don't bother too much with pathology; you can hire a pathologist for five dollars. If you work on science, people will think you have no practice." But with the support of the government, the recognition of a whole great circle of scientific workers, who are aiming to be teachers without obtaining a great practice, goes to breed a spirit of zeal for scientific work in itself which has developed in this country very much in the last ten years. Whether by the beginning of the next century it is going to eclipse Germany I very much doubt; but the zeal for science, the seeing of very thorough work in any one department, is what a graduate going to Germany can find. The vast aggregation of clinical material, the ease of following out the instruction in any one department, is what he can get in Vienna. He can study one thing all day in Vienna. If he knows what he wants to study, he can lay his day out and study that one thing.

If he wants to study all sorts of things, he can do that also. I think if a man has had his hospital course here, and wants a year of post-graduate course, he will do better in Vienna, on account of the ability of choosing what he wants to do and of being able to pursue any particular line of study. In Berlin he can find the highest possible development and thoroughness in any one study; especially in the subjects of surgery, gynæcology, bacteriology, there is a perfection of technique and a completeness of equipment hard to find elsewhere. I dare say the same may be true of other subjects which have not come under my immediate observation. I will close by saying, that everywhere in Germany, Austria, France and Italy, I have had to admire the zeal and erudition of the teachers, their interest in their subjects, and the kindness and courtesy with which foreigners in general, and I myself in particular, have received information, facilities for study and civilities of all kinds, in such a way that, I, for one, feel under deep obligations to the teachers of those countries.

DR. WITHINGTON: I did not say anything in the paper about the instruction in England; but as that has been referred to, I will say that I think we have nothing to be ashamed of in our best medical schools as compared with London. In one respect they have the advantage, and that is that their examining boards are distinct from their teaching boards. With such a stiff series of examinations they cannot afford to let their instruction drop very much below what it is at the present time. As regards comparison between results of our own schools and those of Germany, one thing ought to be borne in mind, that while we may contemplate with a tolerable degree of satisfaction the comparison between our *best* schools and the best schools of Germany as far as undergraduate work is concerned, yet that no such comparison can be made between the *average* medical schools of our country and those of Germany.

THE NEW YORK NEUROLOGICAL SOCIETY.

STATED meeting held at the New York Academy of Medicine, Tuesday evening, October 3, 1893, DR. M. ALLEN STARR, President, in the chair.

MEMORIAL OF PROFESSOR CHARCOT.

This paper was read by the President. The author gave a brief sketch of Charcot's life, and reviewed the work of the great neurologist. Prof. Jean Marié Charcot was born in Paris, on the 29th of November, 1825. He was the son of a wagon-maker, a man of such limited means that he was not able to give all his children an education. Jean Marié received his early education at the Lycée St. Louis, at that time the best academy in Paris. After his preliminary education was completed there, the choice of the medical profession was made not without some hesitation, for the inclination of the young man was for the life of an artist, and it was possibly the lack of means which finally determined him to take up medicine. After passing through the medical school and serving as an interne in La Salpétrière — an alms-house for old women, then almost unknown, but later to become famous as the seat of his wonderful activity — he took his doctorate degree in 1853. For the next three years he served as chief of the medical clinic in the medical school, supporting himself meantime by giving private lessons. He was then appointed physician to the Central Bureau of Paris, on a moderate salary. In 1860, after passing a rigid competitive examination, he became entitled to a hospital appointment, and two years later he was able to select the service at his old hospital, La Salpétrière. He found a large number of old people collected together in this poor-house, many of them suffering from chronic incurable diseases. He had the opportunity to watch the progress of disease, both acute and chronic, in old age; and, most important of all, he had unlimited pathological material to complete his clinical observations. It is to this latter fact that he owed the beginning of his reputation, for at that time pathology was just beginning to reveal the true reasons for disease. By the careful study of his cases, by his power to seize upon salient features which gave points for differentiation, by his persistent following of cases from the ward to the autopsy-room, and by the exhaustive study of the material collected there, he began to reach conclusions and to arrive at facts which were veritable discoveries in the medical world. The articles written by him between 1860 and 1870, each of which adds a distinct fact, observation or conclusion to the sum of medical science, soon began to attract attention; and the young physician found his rounds beginning to be attended by students who liked to watch his careful study of cases or see him demonstrate the lesions which he found. In 1866, a small room in the hospital was set aside for the purpose of instruction, and he began to hold clinics and to lecture. The lectures were soon crowded by graduates in medicine, and the next year he was invited to give an open course of lectures at the École Practique of the medical school. Here he had an opportunity to cultivate the power of teaching, and soon showed that wonderful facility of clear, direct statement and power of graphic illustration which later made his lectures the most attractive in the world. His first open course had for its subject cerebral hæmorrhage and softening. In subsequent lectures he discussed the clinical and pathological differences between paralysis agitans and multiple sclerosis: the arthropathies, which have since been known as Charcot's joint disease; trophic disturbances following cerebral and spinal diseases, etc. Thus within four years he had risen from the position of an unknown teacher to the position of one of the best lecturers in the Paris school.

In the year 1870, all female epileptics and hysterics who were not insane, were transferred to La Salpétrière. This afforded Charcot new material for study; and in 1872 the study of hysteria in its multiform manifestations became one of his duties. The same year he was appointed Professor of Pathological Anatomy in the Faculty of Medicine in Paris, the highest prize in the French medical world. In 1882, a Professorship of Nervous Diseases was founded in the medical school, and Charcot received the appointment, with the establishment of a public clinic at La Salpétrière. From that time to the present year his annual courses of lectures have been attended by students of medicine from every land; and it may be truly said that few men of eminence at present living and working in neurology have not drawn inspiration from his model clinics.

Charcot's collected works will fill fifteen large volumes. He was also instrumental in founding a number of medical journals. His three volumes of lec-

tures, published from 1872 to 1880, have had an immense sale. Public recognition of Charcot's abilities and eminence was not wanting. He had been president of all the chief medical societies in Paris, was corresponding member of numerous societies abroad, among them being the New York Academy of Medicine and the New York Neurological Society; he was made a Member of the Institute of France in 1883, and Commander of the Legion of Honor in 1892.

Charcot's investigations in hypnotism have attracted much attention, both from the profession and from the laity. It is difficult for any one to enter upon the study of this subject, or to pursue it with any degree of thoroughness, without exposing one's self to adverse criticism and remark. It is difficult to estimate the true value of this department of Charcot's labor, but it cannot be denied that all through the years which he devoted to this study his mind has been imbued with the purest scientific motives, and that facts, not theories, were his aim.

Another criticism which has been offered is, that in his scientific zeal, he neglected therapeutics: that his interest in patients ceased with the diagnosis. Those who make these statements must surely forget that our best methods of treating functional and hysterical nervous diseases, namely, the electrical and hydrotherapeutic methods, were successively developed and successfully employed by Charcot.

Charcot was a man of great dignity, of calm, even temper, of slow thought and utterance, but of much reserve power. In appearance like Napoleon, and in manner reserved and observant, he was not the type of man to be popular. With patients suffering from trifling affections he showed no sympathy; probably no interest. With patients whose diseases were severe or obscure or of a rare type, he was kind, attentive, interested, and was ready to spend valuable time in most careful investigation. His relation to his pupils was also one of mutual interest and affection. He was never familiar with them, yet he always respected and sought their opinions, was never autocratic in the direction of their work, and was always the subject of their devoted admiration and respect. His family life was a delightful one. He was married early in life to a lady of considerable wealth, who was enthusiastic in his work, and by whose aid many scientific undertakings, otherwise impossible, were carried through. He had two children, one a boy, whom it was his fond desire to see succeeding him as a physician, and who gives promise of being worthy of the name. Charcot, like every man of eminence, had his enemies — critics in science — rivals in medicine; yet, after all their criticism is exhausted, we must admit that he remains the greatest French physician since Trousseau, and the greatest ornament of the profession of the present age.

At the completion of Dr. Starr's address, Dr. E. C. Seguin gave a few personal reminiscences of Professor Charcot. He referred to the generosity of the great physician in placing at the disposal of his students his abundant material and the use of his laboratories, and in allowing them to receive the full credit for their labors, instead of appropriating it to himself. Many of Charcot's pupils, Bourneville, Bouchard and others, have been helped by him in every possible way to attain honorable positions. In disposition he was quite different from the popular idea of the Frenchman. He was not quick, nor hasty nor mercurial. Every thought was carefully matured, and he collected his material for a long time before reaching or publishing his conclusions. He was averse to theorizing. He was a close analyst and a devoted follower of the induction method in reaching conclusions. Primarily, Charcot was a pathologist, and his reputation will always rest on his achievements in this field of medicine. His work in hypnotism, by which he was greatly fascinated, can only be regarded as a mere fragment — a digression which in the future will count as nothing.

A CASE OF GENERALIZED PARESIS ENDING IN COMPLETE RECOVERY,

by Dr. E. C. Seguin.

The history of the case is as follows: The patient was a boy aged thirteen years, who was brought to Dr. Seguin in October, 1886, for an opinion as to the nature and prognosis of a singular condition of increasing muscular weakness, which had come on during the preceding eighteen months. The boy's family history was fairly good. His mother was of a nervous temperament and for a few months had been addicted to the chloral habit. Out of six children only one other, a sister, had had a nervous disease, namely, a mild chorea extending over several years. There was no trace of muscular disease, atrophic or distrophic, in the family. The patient's history, previous to the onset of this disease, was negative. At the age of six years he had a severe attack of albuminuria, which left no traces. In April, 1886, he had what seemed to be a mild attack of articular rheumatism. He was a very active and daring boy, and had numerous falls, none of which, however, were followed by serious symptoms. There was a history of masturbation, carried on for several years. There was no history or evidence of metallic intoxication, nor at any time was there any indication of hysteria. The only positive causative element in the case was the self-abuse. This practice, the boy stated, he had given up in the spring of 1885, when he himself noticed that he had slight difficulty in articulating his words. Five months subsequent to this the boy's symptoms were first brought to his father's attention by the fact that he twice fell out of the saddle and by his suddenly dropping the oars in a boat and acting as if paralyzed for a few minutes. Even before that, it was recalled, he had become rather awkward in buttoning his clothes and in using the knife and fork, and that after reading aloud for a few minutes his articulation became thick. Very gradually he lost his energetic ways and became awkward in everything; his attitude had changed so that he stooped, the neck hanging down and the abdomen protruding. His facial muscles lost much of their expression and his laugh was constrained and unnatural. All these symptoms developed and progressed very slowly during the years 1885 and 1886. The boy was subject to "sudden collapses," as his father called them, characterized by the sudden loss of control over many muscles, resulting in falls or in dropping objects from the hand. These last-named symptoms suggested petit mal, but this affection was excluded after careful observation. The symptoms were entirely of a motor order; no numbness, no anæsthesia, no neuralgia, no psychic or trophic symptoms. All his organic functions were normally performed; nutrition was good. The eyes were normal. The legs were apparently strong, and the boy could rise from the dorsal recumbent posture on a flat couch and also from a squatting

posture, but these acts were done feebly, slowly and with great effort. The spine was not tender and presented no deviation, excepting an antero-posterior one. Local paresis of the muscles was demonstrable only in the extensor group of the right forearm. No muscles showed atrophy or hypertrophy. The knee-jerk was normal. No sensory symptoms, excepting a sense of fatigue in the muscles of the lips and tongue, as well as those of the forearm on exertion. On electrical examination the reaction of the nerves and muscles to both currents was normal. The sexual organs showed no visible signs of masturbation. Grasp on dynamometer; right hand 11, left hand 16.

The above were the facts of main importance elicited at the first examination made by Dr. Seguin in October, 1886. The boy remained under his care from that time on for about two years, during which period he decidedly improved in motor power and skill, and his height increased by six inches. The treatment from the first, in the absence of any possible pathological diagnosis, consisted in the systematic, long-continued administration of tonics, such as the bichloride of mercury, phosphorus, arsenic and strychnia. At the same time, a mild faradic current was applied systematically every day. Also, from the first, a cold sponge bath was ordered on rising or at bed-time, followed by a thorough dry rubbing and a manipulation of all the muscles. Another part of the treatment consisted in gentle gymnastic movements of the hands, arms, trunk and legs.

The case was lost sight of by Dr. Seguin from the close of the year 1888 until September of the present year (1893), when on inquiry, he received a letter from the boy's father stating that his son is now in the junior class at college, that he stands well in his class, and excels in wrestling and other athletic sports. The treatment advised by Dr. Seguin had been faithfully carried out for nearly three years longer by the father, followed by a gradual, but continued, improvement in the boy's condition. His weight at the present time is 166 pounds. Circumference of chest: expiration, 33 inches; full inspiration, 39 inches. Circumference of waist, 31 inches; of mid-thigh, 22 inches; of biceps, 13 inches. His endurance is good and he is able to raise from the ground an iron rail weighing 600 pounds. His grasp on the dynamometer at present is, right hand, 72; left hand, 53. This, Dr. Seguin said, is the strongest grasp he has ever met with.

DR. B. SACHS said that in listening to the first part of Dr. Seguin's paper — before it told of the boy's remarkable recovery — the case reminded him of a primary muscular dystrophy, of the facial, scapular, humeral type, with perhaps some extension into the lower extremities. Such a case has recently come under his observation, with many symptoms very similar to those narrated by Dr. Seguin. In cases of progressive primary dystrophy, particularly in pseudo-hypertrophic conditions, he has seen marked temporary improvement following treatment, although he has never observed a complete cure. Again, in Dr. Seguin's case there might possibly have been some nuclear trouble, with a mingling of symptoms pointing to the spinal cord or medulla. If the case was one of primary muscular dystrophy, the question arises whether the cure will be a lasting one. He has seen a number of cases with a condition of pseudo-hypertrophy, in which the muscular tissue first enlarges and then rapidly atrophies.

DR. GEORGE W. JACOBY suggested that Dr. Seguin's case might have been one of poly-myositis ending in complete recovery, and followed by a secondary hypertrophy of the muscles, which now exists.

DR. J. F. TERRIBERRY stated that it was against the laws of pathology to assume that an inflammatory process in the muscular tissue is followed by hypertrophy of the muscle, with increased force.

DR. E. D. FISHER said that when we take into consideration the fact that the boy grew six inches taller while he was under Dr. Seguin's care, the lesion was probably not a spinal one.

The discussion was then closed by DR. SEGUIN. He stated that the suggestion made by Dr. Sachs with reference to the possibility of curing a case of muscular dystrophy in its early stage was an interesting one; he was not prepared, however, to advance the case as an instance of that disease. Neither did it resemble a case of myositis. There was no pain; there was a general weakness, which was sometimes so pronounced that the boy was unable to hold objects in his hands, or he would lose all control over his muscles and fall to the ground.

Recent Literature.

Naphey's Modern Therapeutics, Medical and Surgical including the Diseases of Women and Children. A Compendium of Recent Formulæ and Therapeutical Directions from the Practice of Eminent Contemporary Physicians, American and Foreign. Ninth edition. Vol. II, General Surgery, Gynecology and Obstetrics. By ALLEN J. SMITH, Professor of Pathology, University of Texas, Galveston; late Assistant Demonstrator of Morbid Anatomy and Pathological Histology, and Lecturer on Urinology, University of Pennsylvania; and J. AUBREY DAVIS, M.D., Assistant Demonstrator of Obstetrics, University of Pennsylvania; Assistant Physician to Home for Crippled Children, Philadelphia. Philadelphia: P. Blakiston, Son & Co. 1893.

The volume which we have before us has passed through nine editions, which is an evidence that it fills a need in the community. The views of authors have been collated by the compilers, but in many instances are diametrically opposed to one another, and the reader is allowed to select for himself and adopt the view which strikes his fancy. Many of the authorities quoted we are not familiar with. There can be no doubt but that the book contains a great deal of useful information; and, as a whole, we can only congratulate the authors on the accomplishment of a work so satisfactory.

Reactions. A Selection of Organic Chemical Preparations Important to Pharmacy in Regard to their Behavior to Commouly-used Reagents. By F. A. FLÜCKIGER, Ph.D., M.D. Translated, revised and enlarged by J. B. NAGELVOORT. Authorized English edition. Detroit: George S. Davis. 1893.

This volume is a revised and enlarged edition of the German text. It contains the results of Professor Flückiger's researches upon more than one hundred organic pharmaceutical preparations, to which the translator has added, in many cases, the results of his own experience. The book is of special interest to the pharmaceutical profession, and will be very useful.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, DECEMBER 14, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

EPIDEMIC INFLUENZA.

THE reports of a threatening epidemic of influenza, which have been published during the past two weeks, have been most alarming. So far, they have been almost entirely confined to the daily press, and have served a most useful purpose in making startling and vendable items for the metropolitan Sunday papers.

There has undoubtedly been a return of the disease to some extent abroad, especially in England and some parts of Germany. The number of cases reported in London is said to have doubled during the last month, and over thirty members of Parliament were reported as ill at one time with that or some allied disease. On the Continent the epidemic is said to be even more marked, not being confined to political gentlemen. In the Upper Rhine and Main regions it approaches the virulence of the plague, and a fifth of the whole population of Hesse-Darmstadt is reported down with it. Parliamentary work at Vienna ten days ago was at a standstill because all the officers of both houses were suffering. In Berlin, also, the type of the disease, which is fast becoming general, is said to be more severe than in former epidemics. The alarming nature of their report is somewhat mitigated by the continuation of the account in one of these letters, which says: "Its latest form differs from the Russian variety. The disease is not so dangerous or prolonged as the more familiar grip, but is more infectious. It is almost like measles in this respect. The victims include all classes."

The London *Lancet* of December 2d makes the following statement in regard to influenza:

"There seems a strong tendency to a pretty wide diffusion of this disease in the metropolis. The attacks are not so serious or fatal as on some occasions, but they are very typical — characterized by abrupt onset, a sharp pyrexia, generally subsiding in a day or two, unless complicated with catarrh, which is not always the case. It is decidedly infectious, in some houses almost every member being affected."

From the *British Medical* of the same date, we take the following:

"Reports which reach us from our correspondents show that influenza in epidemic form continues to prevail extensively in the neighborhood of Cardiff and throughout South Wales, in Birmingham and the Black Country, in Liverpool, Manchester, Blackburn and various other parts of Lancashire. It is extending into the Potteries, and our Edinburgh correspondent writes that, after a short lull, it has broken out again in that city, and in a more grave form; some large offices, including the post-office, have had a long sick list, and the death-rate has risen during the last three weeks from 17 to 25, and last week to 27. The mortality last week was 138, and of this number no fewer than 90 deaths were due to diseases of the chest. In this epidemic again the large towns appear to be the foci of infection, which spreads thence into suburbs, and finally into country districts. The epidemic continues to be severe in Berlin, while in Frankfort and Hesse it is said that 20 per cent. of the inhabitants are suffering. In Posen and East and West Prussia, the epidemic is very prevalent, so that in some places one-fourth of the workmen are off duty. It is spreading also in the suburbs of Hamburg, and is present in Lubeck."

It will be remembered that in the first great outbreak of recent years, that of 1889, influenza declared itself with us in a violently epidemic form about ten days before it developed or was reported as epidemic in London or England.

The occurrence of some undoubted cases of influenza has been reported from Chicago and New York. The returns of the daily press from St. Joseph, Mo., reported 400 cases in three days a week ago, and at Denver, Col., we were told it was then even more prevalent than in 1891. It will, however, be time for a general alarm to be issued when the reports so far published have been confirmed by competent medical advices, which as yet we have not received. Careful inquiries among practitioners and at the hospitals fail to elicit any facts tending to show the presence of any unusual form or degree of influenza in Boston or its vicinity at the present time, although some medical men report having seen individual cases, and a few speak of having seen families afflicted with the disease.

It is to be hoped that the reports will be found to be exaggerated, and that the community will be spared another epidemic. For epidemic influenza is even worse than epidemic foot-ball; it is rougher and more dangerous.

THE ADMINISTRATION OF HOSPITALS FOR THE INSANE IN NEW YORK.

THE laws of New York and Massachusetts have placed those States in the foremost rank of intelligent and liberal care for the insane. The enactments regulating the commitment to asylums, and the care while there, of the insane, and especially the State Care Act of New York, have been in the main wise and beneficent. They are chiefly due to the persistent efforts of the State Board of Charities, and especially of Mr. Letchworth, Chairman of the Board, and Mrs. Lowell, and to the excellent administration and advice of Dr. Stephen Smith, the former Lunacy Commissioner.

The essential points of superiority in the New York system are (1) the control of the hospitals by an unpaid board of managers free from personal and political motives; (2) the appointment of medical officers by merit and not through political favor; (3) the maintenance of State hospitals of a high grade of excellence

for the curable insane and for those needing hospital care; (4) the removal of the chronic and pauper insane from poor-houses, jails and county asylums to inexpensive buildings under the supervision of the officers of the hospitals, with the establishment of farms or colonies for such of the insane as do not need much medical care, where they can be treated as nearly like sane and industrious people as possible.

The weak point in the New York law is that a plan for centralizing in a State Commission power as to details of management of the hospitals, which was overwhelmingly defeated in the Massachusetts legislature, has become part of the New York statute, and that the Lunacy Commission, which ought to be a purely supervising and advisory board, has executive functions which are not only needlessly vexatious to the hospital managers and medical officers and prejudicial to the interests of their patients, but also may be destructive of good morals. Moreover, the law is in danger of making a corrupt political machine out of what ought to be a philanthropic and unselfish body.

There are indications that what was feared has happened, and that the Lunacy Commission, which it is possible to construct into part of a great party machine, has made the enforcement of a bad law even worse than the law itself. The managers and medical officers of the hospitals for the insane have taken courage from the political upheaval in favor of good government in their State, and are attempting a reform, in which we wish them every success.

MEDICAL NOTES.

THE REVOLT OF THE BRAZILIAN MEDICAL STAFF. — The entire medical staff of the Brazilian navy, which has been loyal up to the present time, has joined the forces of the insurgents and placed itself under the orders of Admiral Gama.

A NEW JOURNAL. — A new journal, devoted to diseases of children, has recently appeared in France. It is entitled the *Journal de Chirurgie et de Thérapeutique Infantiles*, and is edited by Dr. Variot of Paris.

CHOLERA. — There has been a decided increase in the cholera in Constantinople during the last two weeks, over thirty new cases occurring daily. There have been several deaths from the disease in Tripoli. In Russia there has been, on the whole, a diminution in the number of cases. In Italy a few cases occur from time to time in Leghorn, Genoa and Naples; but the epidemic is practically at an end in these cities. The outbreak in England, which was speedily checked, has not recurred and no cases have occurred since the last report.

YELLOW FEVER. — The yellow-fever epidemic at Brunswick is practically at an end, no cases having occurred since November 23d. The quarantine camp was closed on Thanksgiving Day, and the people allowed to return home. In all there were one thousand and one cases and fifty-three deaths: forty whites, one Mongolian and twelve blacks.

BOSTON AND NEW ENGLAND.

VACCINATION AND QUARANTINE OF CONTAGIOUS DISEASES AMONG SCHOOL CHILDREN REFERRED TO THE BOSTON BOARD OF HEALTH. — At the last meeting of the Boston school committee, the following order was passed: "That the Board of Health be requested to assume the responsibility of issuing certificates of vaccination required by law, and of passing upon all cases of contagious diseases, determining when children may return to school after such disease or exposure thereto, and giving the requisite certificates: and that the said Board be further requested to include in their estimates for the next fiscal year a sufficient sum of money to enable them to attend to these new duties."

SUICIDES FROM CYANIDE OF POTASH. — Since the publicity given the mysterious deaths of the members of the Toole family in South Boston from cyanide of potash, the drug has become a popular one for suicides, three self-inflicted deaths having been due to this drug.

SMALL-POX IN BOSTON. — During the last week ten cases of small-pox have occurred in Boston. On December 7th the disease was reported from a family at the South End; and within two days the father, three sons, three daughters and the servant were taken to the hospital. A cousin of the family — a woman — was also taken ill at her home and sent to the hospital. None of these cases can in any way be traced to the cases occurring from the *Catalonia* in October. The cousin came from New Brunswick about a month ago, and was the first member taken ill; but the most careful investigation shows no connection with the previous cases. All these patients had a family gathering about Thanksgiving time, and two of the guests present have also been taken ill with small-pox during the week — one at Somerville and one at Hyde Park. The tenth case in Boston is that of one of the table-girls at the Homœopathic Hospital, who had never been vaccinated, but who has had no discoverable exposure. Of the eleven patients now in the hospital only one had ever been vaccinated, and that one is slightly ill. Of the seven discharged well since October 30th, three had been vaccinated, and were but slightly ill; while the others were seriously ill. Two of the present patients are dangerously ill, and their recovery is considered doubtful.

A NEW HARVARD RECORD FOR STRENGTH. — The Harvard record for total ascertained strength, which has been held since 1885 by Mr. S. T. Foster, has been surpassed by a member of the present junior class, Mr. Edward Klein. His total strength, as measured by Dr. Sargent's method, is 1,445 kilogrammes, which is 97 kilogrammes more than the previous record. This total is distributed as follows: lungs, 23; back, 340; leg, 740; upper arm, 201; right forearm, 78; left, 63.

Massachusetts Insane Asylum Reports. — The annual reports of the superintendents of the various State insane asylums are being issued from the office of the Secretary of the Commonwealth. Danvers Lunatic Hospital had at the end of the official year, September 30th, 869 patients, seven more than last year. The report of Dr. Page calls attention to the unavoidable overcrowding at times, which necessitated the use of extra cots in the day-rooms and corridors. "The vital objection to this overcrowding," he says, "arises from the necessary mingling of acute cases with the many chronic patients, which is a serious obstacle to the recovery of the former." The average weekly cost of maintaining each patient was $3.55. At the Worcester Lunatic Hospital there were 886 patients, five less than last year, 439 men and 447 women. The daily average number of patients has been 878.78, the largest within the history of the hospital. The cost of maintenance per patient has been $3.58 per week. At the Worcester Insane Asylum, there were 454 patients, 231 males and 223 females, a gain of five over the first of the year. The average daily number has been 447, or 82 more than the normal capacity of the institution.

Diphtheria at West Newton. — An unusually large number of cases of diphtheria and scarlet fever are reported from West Newton, Mass., there being about twenty-five cases of the former disease and nearly as many of the latter.

Small-Pox in Portland. — A case of small-pox is reported from Portland, Me., the patient, a man of thirty, had been ill for two days in a large boarding-house, which is now under quarantine.

NEW YORK.

Epidemic Diphtheria. — Diphtheria is epidemic at Tivoli, on the Hudson, and one or two adjacent villages, and a large number of deaths have occurred. In order to prevent the further spread of the disease the State Board of Health has enforced strict quarantine regulations, including the closing of all the schools and churches.

Electrical Execution. — The most successful electrical execution that has as yet been made was that of the murderer, Delfino, at Sing Sing prison on December 4th. The apparatus was in perfect working order, and death was instantaneous. For four seconds a current of the strength of 1,760 volts was employed, and it was then reduced to 160 volts and so maintained for forty-six seconds.

Dr. Paul Hoffman. — Dr. Paul Hoffman, Assistant Superintendent of Public Schools, who was injured by a Broadway cable car on November 24th, died in consequence of the injuries thus received on December 2d. Several of his ribs were fractured, and a few days after the accident pneumonia set in. Dr. Hoffman, who was fifty years of age, was born in Switzerland, though of German parentage. He was a graduate of the Medical Department of the University of Berlin, and had travelled extensively; at one time being physician to the Sultan of Johore. He had resided in New York for a number of years, but never practised medicine there. In 1877, he became connected with the Department of Public Education, and in 1881 was appointed to the position which he held at the time of his death. Dr. Hoffman had charge of the school children's exhibit from the city of New York at the Chicago World's Fair.

Mortality. — The advent of winter weather has occasioned a considerable increase in the city's mortality. The number of deaths reported during the week ending December 2d was 759, representing an annual death-rate of 20.63 per thousand of the estimated population; against 676, representing an annual death-rate of 18.39, in the preceding week. The average death-rate of the corresponding weeks for the past five years was 19.60. During the week there were 109 deaths from contagious diseases, an increase of 32 over the previous week. During the week ending December 9th the number of deaths reported was 731, representing an annual death-rate of 19.86, against 20.43, the average for the corresponding weeks of the past five years. There was a decrease of 17 from the preceding week in the mortality from phthisis, though there was an increase of six in the deaths from bronchitis. Three deaths were attributed to influenza, against one in the week ending December 2d.

Miscellany.

THE ANCIENTS AND LEPROSY.

Much of the difficulty encountered by the commissioners in obtaining the family history of lepers in India is accounted for by the *Indian Medical Gazette*, by reference to the ancient beliefs handed down to the people and still authoritative among them. It gives the following translations from the sacred books:

Susruta, Nidanasthanam (Chap. V, p. 223). — "They say that leprosy originates from murder of Brahmins, women and good men, theft, and such like acts."

Charaka Samhita (Chap. VII, Treatment of Leprosy). — "Those who insult Brahmins, or elders, and commit other sins, (get leprosy)."

Manu Samhita (Chap. XI, 49th *sloka*). — "The stealer of Brahmin's gold gets bad nails; the alcohol drinker gets black teeth; the murderer of a Brahmin get consumption; and the violator of a *guru's* (spiritual guide's) wife gets leprosy."

Manu Samhita (Chap. V, 166th *sloka*). — "The wife who commits adultery is an object of contempt in this life, and becomes a jackal, or gets leprosy and other sin-begotten diseases in the life to come."

It is thus popularly assumed that a leper must have committed some such sin as adultery with a *guru's* wife, or, as commentators add, with a stepmother, etc., and the like. What a sinner such a man is thought to be, may be judged from the following prescribed atonement:

"The violator of the wife of a *guru* after confessing his guilt, must lie on a hot iron bed, and embrace a red-hot iron female effigy till death, which will purify him."

The ideas of physicians upon the heredity and con-

tagion of leprosy, were not less accurate than those of modern writers, as is shown by the following statement of the great medical writer, Susruta:

"Women and men, having their blood and seminal fluids corrupted from leprosy (not of the white kind), get their offspring lepers."

"The diseases named below are transmitted from one person to another by sexual intercourse, by touch, by the breath, by taking meals in the same dish; by sleeping in the same bed and sitting on the same seat; by putting on the same garments, by wearing the same garland, and by using the same ointments: — leprosy, fever, consumption, ophthalmia, and small-pox of different kinds."

THE INCREASE OF INSANITY IN ENGLAND.

MUCH has been written lately about the great increase of insanity in England in the last few years. The daily and periodic press especially have delighted in the alarming state of affairs and while some competent observers are inclined to believe in an increase of the disease, the general results of statistics furnished by the Commissioners of Lunacy are offered to this view.

Dr. Rayner, in a recent article,[1] says that an analysis of these statistics shows three clear and definite facts: (*a*) that in the last two decades there has been a progressive diminution in the number of mentally afflicted under the age of twenty-five years; (*b*) that there has been an inconsiderable increase between the ages of twenty-five and forty-five; and (*c*) that practically all the excess of increase has been in persons above the age of forty-five years. The decrease of insanity in the population in the first twenty-five years of life, if satisfactorily proved, would go far to convince those who have actual experience of the insane that this must correspond to a diminution in the total production of mental disease. The tendency to increasing degeneration in the families of the insane, resulting in later generations in mental defect, is a well-established fact. If, therefore, there has been a diminution in the early decades of life, this must correspond to, and be the result of, a lessening of hereditary influences.

The increase in actual number of persons confined in asylums is owing to several factors. Yearly the advantage of institutional treatment for the insane is better appreciated, and families are more willing to send their afflicted members away from home. Another reason is the transfer of pauper and criminal insane to the proper asylum instead of confining them to almshouses and jails. An eminent alienist physician, of large experience in prisons, recently expressed the opinion at a public meeting that a not inconsiderable part of the decrease of criminals was due to the fact that many weak-minded persons, formerly classed as criminals, were now relegated to asylums. The statistics in support of this view are, however, not easily available. Still another reason is found in the greatly increased survivorship of persons mentally affected when cared for in asylums.

The only form of mental disease in which a great development is alleged is general paralysis; but the apparent excess is probably chiefly due to increased care in diagnosis and to such cases being more largely sent to asylums. This form of disease, however, with an average asylum duration of two to three years, would not greatly add to the permanent numbers, except by an increase much beyond that which is claimed for it.

The asylum population (whatever the causes) has increased since 1871 by about 30,000, and if the facts relating to increased survivorship under asylum treatment have any cogency, this (survivorship) would by itself account for the small advance in the census numbers of the insane under the age of forty-five, from 2.24 per 1,000 of population in 1871 to 2.26 per 10,000 in 1891, without resorting to any theory of actual increase.

The ultimate conclusion is that the evidence at present available admits of the interpretation that there is no real excess in the amount of occurring insanity, but is even compatible with the possibility of an absolute diminution, which has certainly occurred in the earlier decades of life, and is probable in the well-to-do classes.

[1] British Medical Journal, November 25th.

SOME MORE INTUBATION STATISTICS.

IN the much vexed question of the relative merits of tracheotomy and intubation, there is one factor which should be allowed its due weight and which has not yet been sufficiently regarded, namely, the availability of the one or other operation in private practice. So far, the greater number of cases reported, upon which statistics and arguments have been based, have been those occurring in hospital practice. The operation of intubation is so comparatively new that the general practitioner has, as a rule, not seen a sufficient number of cases to base an opinion upon. It is for this reason that the publication of small individual experiences is likely to be of more frequent occurrence during the next few years, and of considerable value, especially when published unincorporated with other statistics.

Dr. R. J. Stanton, of New York, reports[1] 70 cases intubed by him in the course of general practice, all but two having occurred in tenement-houses, where for obvious reasons the patient's chances for recovery were poor. "Of these 70 cases, 46 terminated fatally, and the 24 recoveries gave a percentage of 34.3 successful cases. Of the 46 deaths, 14 were due to extension of membrane, five to sepsis, four each to asphyxia and pneumonia, three to uræmic convulsions, and two each to exhaustion, pulmonary œdema, nephritis and bronchitis." Of the four deaths from asphyxia, two were apparently due to membrane pushed down ahead of the tube, and two followed upon the child's pulling out the tube in the physician's absence. One of the deaths from pulmonary œdema seems hardly to belong to the unsuccessful cases of intubation, as the death occurred four days after the removal of the tube, which had been worn a week, and without any occurrence of laryngeal obstruction.

Of the cases operated on, 42 were males and 27 females, one not noted; 15 males recovered (or 35.7 per cent.), and 9 females (or 33.3 per cent). The ages ranged from ten months to seven years. The youngest successful case was fourteen months, the average age being three years and five months. Three cases (one fatal) had secondary tracheotomy. The longest period during which a tube was worn was sixteen days, by a girl four years old. In three

[1] New York Medical Record, November 25th.

cases the tube was passed into the œsophagus and swallowed; in two it was passed in the dejecta on the second and fifth day. The other case died of sepsis after secondary tracheotomy, within twenty-four hours.

Dr. W. B. Johnson, of Paterson, N. J., reports[2] 19 cases with six recoveries, one after secondary tracheotomy. Nine boys were operated upon, with five recoveries, or 55.5 per cent.; while 10 girls gave one recovery or 10 per cent. The recovery after secondary tracheotomy was in a boy three years and four months old. Of the 13 deaths, two were due to extension of the membrane, three to sepsis, two to asphyxia from membrane, and two each to pneumonia, cardiac paralysis and exhaustion. The youngest child to recover was a boy two years and seven months old. The longest time a tube was worn was ten days.

BOYCOTTING THE CHARITÉ.

THE Berlin Correspondent of the *Medical Press* sends the following account of the recent boycott of the Charité Hospital of Berlin:

For some time past the Social Democrats have had reason, or what is the same thing to them, they believe they have reason to find fault with the management and nursing staff of the Charité Hospital, and have in consequence "boycottirt" it. The Social Democrats are a very powerful body with a firm organization, and the result is that about 200,000 members of the different sick societies have determined to have nothing more to do with this hospital until fresh arrangements are made in accordance with their views. The leading spirit in the new enterprise is a young medical practitioner, named Zadek, who has the reputation of being a fanatical Social Democrat, and who has at any rate done some good work as a city deputy in the debate on typhoid fever. The grounds of complaint lie in the structural and sanitary condition of the hospital, and in the management and treatment of patients. On the latter point, however, no charges are brought against the medical staff, but only against the subordinate officials and nurses. As regards the structural deficiencies of the building, the charges may not be unfounded, as the old Charité is one hundred years old, and the new over sixty. Quite recently additions have been made to the existing accommodation, the children's pavilion, the obstetrical and gynæcological kliniken. The surgical department and the Koch barracks are models of their kind, but it must be confessed that the ancient buildings are not representative of the latest developments of science.

The second charge is that the patients, and especially those in the syphilitic department, are treated with inhumanity and deprived of their liberty. The Charité has to take in all patients sent by the police, and amongst these the *puellæ publicæ*. Those patients who commit excesses and cause a great deal of trouble cannot in the interests of order be treated exactly as the others, and it is not denied that in numerous instances some hardships have been on the one side inflicted and on the other endured. What will be the upshot of the movement, or what hospital the exacting Social Democrats will take under their protecting care, in place of the one that has excited their wrath, one cannot at present pretend to say.

[2] Journal of the American Medical Association, November 25th.

METEOROLOGICAL RECORD,

For the week ending December 2, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		W'th'r.*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..26	30.59	26	30	22	55	40	48	N.W.	N.W.	16	9	F.	C.	
M..27	30.51	30	41	20	59	74	66	N.W.	S.E.	4	10	C.	O	
T..28	29.74	48	60	36	97	50	74	S.E	W.	23	24	R.	O.	.39
W..29	29.92	46	52	41	56	76	66	S W.	S.	15	18	F.	C.	
T..30	29.84	48	54	42	66	56	61	W.	W.	13	9	F.	C.	
F.. 1	29.83	40	46	34	68	75	72	S.W.	N.W.	7	18	O.	O.	.36
S.. 2	30.25	28	32	23	67	52	56	N.W.	W.	19	6	C.	C.	
☞	30.09		45	31			63							.75

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 2, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	759	277	19.11	18.72	2.34	1.82	9.49
Chicago	1,438,000	—	—	—	—	—	—	—
Philadelphia	1,115,562	402	122	7.25	16.75	—	.75	4.50
Brooklyn	978,394	—	—	—	—	—	—	—
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	204	58	14.70	14.70	.49	2.94	9.80
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	90	31	12.21	11.11	2.22	2.22	4.44
Cincinnati	305,000	149	38	10.05	24.12	3.35	2.01	3.35
Cleveland	290,000	111	38	16.20	20.70	4.50	2.70	5.40
Pittsburg	263,709	—	—	—	—	—	—	—
Milwaukee	250,000	101	50	19.99	16.83	4.95	2.97	5.94
Nashville	87,754	—	—	—	—	—	—	—
Charleston	65,165	38	7	—	2.63	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Worcester	96,217	20	8	5.00	20.00	—	—	5.00
Fall River	87,411	27	12	11.11	11.11	11.11	—	—
Lowell	87,191	22	8	13.65	18.20	—	9.10	4.55
Cambridge	77,100	40	14	32.50	12.50	—	5.00	7.50
Lynn	62,656	12	1	—	—	—	—	—
Springfield	48,684	9	2	11.11	11.11	—	11.11	—
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	24	10	8.32	—	4.16	—	4.16
Holyoke	41,278	13	3	7.69	46.14	—	—	7.69
Salem	32,233	9	3	11.11	11.11	—	11.11	—
Brockton	32,140	5	1	—	—	—	—	—
Haverhill	31,396	4	1	50.00	—	25.00	25.00	—
Chelsea	30,264	5	2	20.00	—	20.00	—	—
Malden	29,394	7	2	14.28	28.56	—	—	14.28
Newton	27,556	13	3	—	7.69	—	—	—
Fitchburg	27,146	5	0	—	20.00	—	—	—
Taunton	26,972	11	2	—	18.18	—	—	—
Gloucester	26,688	1	0	—	—	—	—	—
Waltham	22,058	5	1	20.00	—	—	—	20.00
Quincy	19,642	—	—	—	—	—	—	—
Pittsfield	18,802	—	—	—	—	—	—	—
Everett	18,585	3	0	33.33	—	—	—	—
Northampton	16,331	4	0	—	—	—	—	—
Newburyport	14,073	4	0	—	25.00	—	—	—
Amesbury	10,920	—	—	—	—	—	—	—

Deaths reported 2,135: under five years of age 699; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fever) 310, acute lung diseases 367, consumption 245, diphtheria and croup 142, typhoid fever 43, diarrhœal diseases 42, measles 22, scarlet fever 22, whooping-cough 16, cerebro-spinal meningitis 14, small-pox, erysipelas and malarial fever 3 each.

From measles New York 18, Milwaukee 3, Philadelphia 1. From scarlet fever Cambridge 7, New York, Philadelphia, Boston and Somerville 3 each, Milwaukee and Everett 1 each. From whooping-cough New York 8, Philadelphia and Cincinnati 2 each, Washington, Milwaukee, Cambridge and New Bedford 1 each. From cerebro-spinal meningitis New York 7, Washington and Somerville 2 each, Cleveland, Milwaukee and Everett 1 each. From small-pox New York 3. From malarial fever New York 3. From erysipelas Philadelphia 2, Cleveland 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,317,846, for the week ending November 25th, the death-rate was 20.2. Deaths reported 5,185: acute diseases of the respiratory organs (London) 969, whooping-cough 120, diphtheria 114, scarlet fever 78, fever 67, measles 53, diarrhœa 43, small-pox (Bradford 10, Birmingham 4, London and Bristol 3 each, West Ham 1) 21.

The death-rates ranged from 10.8 in Halifax to 35.2 in Oldham; Birmingham 30 7, Bradford 28.0, Cardiff 24.9, Gateshead 13.8, Hull 27.2, Leeds 24.3, Leicester 23 5, Liverpool 30.9, London 26.5, Manchester 29.9, Newcastle-on-Tyne 22.5, Norwich 25.0, Nottingham 23.2, Portsmouth 17.8, Sheffield 29.5, West Ham 26.6.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 2, 1893, TO DECEMBER 8, 1893.

By direction of the President, the retirement from active service this date, December 4, 1893, by operation of law, of COLONEL CHARLES PAGE, assistant surgeon-general, under the provisions of the act of Congress, approved June 30, 1882, is announced.

FIRST-LIEUT. CHARLES WILLCOX, assistant surgeon, will be relieved from temporary duty at Angel Island, Cal., on the arrival there of MAJOR BENJAMIN F. POPE, surgeon, and will report in person to the commanding officer, Boise Barracks, Idaho.

FIRST-LIEUT. FRANCIS A. WINTER, assistant surgeon, U. S A., is relieved from further duty at Fort Wingate, New Mexico, and from temporary duty at Fort Bayard, New Mexico, and will proceed to New Fort Bliss, Texas, and report in person to the commanding officer for duty at that station.

SOCIETY NOTICE.

MASSACHUSETTS MEDICAL SOCIETY, SUFFOLK DISTRICT. — The Section for Clinical Medicine, Pathology and Hygiene will meet at 19 Boylston Place, on Wednesday, December 20th, at 8 o'clock.

Paper: "Remarks on the Functions and Therapeutic Uses of the Thyroid Gland," by J. J. Putnam. The discussion will be opened by Dr. W. T. Porter with a review of the recent work as to the physiology of the thyroid gland.

F. C. SHATTUCK, M.D., *Chairman.*
HENRY JACKSON, M.D., *Secretary.*

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Wednesday, December 20th, at 8 o'clock, P. M., by Dr. H. P. Bowditch. Subject, "Anthropometry and the Laws of Growth." Physicians are cordially invited.

APPOINTMENT.

Governor-elect Greenhalge, of Massachusetts, has appointed HERBERT L. BURRELL, M.D., Surgeon-General upon his Staff for the coming year.

BOOKS AND PAMPHLETS RECEIVED.

Inebriety. By R. M. Phelps, M.D. Reprint. 1893.

The Providence Lying-in Hospital; Ninth Annual Report, 1893.

A Diatribe on Diphtheria. By James Hedenberg, M.D. Reprint. 1893.

Results of Aseptic Cœliotomy. By Wm. H. Wathen, A.M., M.D. Reprint. 1893.

Chirurgie des Voies Urinaires; Etudes Cliniques. Par le Dr. Loumeau. Bordeaux. 1894.

L'Ictiolo Nella Cura Della Blenorragia. Per Il Dott. Pio Colombini, Aiuto. Siena. 1893.

Dott. Remo Segré, L'Ittiolo Nella Terapia Delle Forme Cutanee E. Venereo-Sifilitiche. 1893.

Report on Nasal Surgery, with Illustrated Cases. By M. F. Coomes, A.M., M.D. Reprint. 1893.

Scabies: Its Symptoms, Diagnosis and Treatment. By J. Abbot Cantrell, M.D. Reprint. 1893.

Ninety-eight Cases of Dysentery in Colorado. By J. N. Hall, M.D., of Denver, Colo. Reprint. 1893.

Uber Ichthyolsuppositorien bei der Behandlung der Prostatitis. Von Dr. A. Freudenberg in Berlin. 1893.

The Modern Eye with an Analysis of 1,300 Errors of Refraction. By W. F. Southard, A.M., M.D. (Harv.) Reprint. 1893.

The Pneumatic Cabinet in the Treatment of Pulmonary Phthisis. By C. E. Quimby, A.M., M.D., New York. Reprint. 1893.

Mechanical Aids in the Treatment of Chronic Forms of Disease. By Geo. H. Taylor, M.D. New York: George W. Rodgers. 1893.

Aus dem hygienischen Institute der Universität Greifswald, Ueber die antiseptische Kraft des Ichthyols. Von Dr. Rudolf Abel. 1893.

A Case of Dislocation of the Fourth Cervical Vertebra without Fracture. By A. M. Holmes, A.M., M.D., of Denver. Reprint. 1893.

A Case of Panophthalmitis, Caused by the Bacillus Coli Communis. By Robert L. Randolph, M.D., of Baltimore, Md. Reprint. 1893.

The Physicians' Visiting List (Lindsay and Blakiston's) for 1894. Forty-third year of its publication. Philadelphia: P. Blakiston, Son & Co.

Volta Bureau, for the Increase and Diffusion of Knowledge Relating to the Deaf, Washington, D. C. List of Publications. John Hitz, Superintendent.

Forty-sixth Annual Report of the Trustees of the Massachusetts School for the Feeble-Minded at Waltham, for the year ending September 30, 1893.

Raro Caso di Empiema Pulsatile Guarito Col Prosesso Pittarelli Contributo alla Terapia della Pleurite Purulenta. Pel Dott. Emilio Pittarelli in Campochiaro (Molise).

A Practical System of Studying the German Language for Physicians and Medical Students for Self-Instruction. By Albert Pick, M.D. Part IV. Newtonville, Mass. 1893.

Recent Progress in Electro-Gynecology. Prevalent Errors in the Treatment of the Diseases of Women. By G. Betton Massey, M.D., Philadelphia, Pa. Reprints. 1893.

Some Effects of Chronic Irritation upon Living Tissues, Being First Steps in a Rational Study of Cancer. By D'Arcy Power, M.A., M.B. Oxon., F.R.C.S., Eng. Reprint. 1893.

The Influence of Climate on the Breathing-Habit, with a Comparison of American Climatic Resorts. By Samuel S. Wallian, A.M., M.D., of New York. Reprint. 1893.

Transactions of the New Hampshire Medical Society at the One Hundred and Second Anniversary held at Concord, June 19 and 20, 1893. Concord, N. H.: Printed by the Republican Press Association. 1893.

Report of a Committee Appointed by Certain Residents upon the Banks of Charles River on the Northerly Side of Beacon Street in Boston upon the Past, Present and Proposed Use of Charles River for Drainage. Boston. 1893.

Transactions of the Medical and Chirurgical Faculty of the State of Maryland, Ninety-fourth Annual Session held at Baltimore, Md., April, 1892, also Semi-Annual Session held at Rockville, Md., November, 1891. Baltimore. 1892.

Pyogenic Infective Diseases of the Brain and Spinal Cord; Meningitis, Abscess of Brain, Infective Sinus Thrombosis. Atlas of Head Sections; Fifty-three Engraved Copperplates of Frozen Sections of the Head and Fifty-three Key Plates with Descriptive Texts. By William Macewen, M.D., Glasgow. New York: Macmillan & Co. 1893.

A Laboratory Guide in Urinalysis and Toxicology. By R. A. Witthaus, A.M., M.D., Professor of Chemistry and Physics in the Medical Department, University of the City of New York; Professor of Chemistry and Toxicology in the Medical Department, University of Vermont, etc. Third edition. New York: William Wood & Co. 1893.

The Narrative of a Busy Life; an Autobiography. By Arthur Hill Hassall, M.D., Lond., Member of the Royal College of Physicians of London; Late Senior Physician to the Royal Free Hospital; Founder of and Consulting Physician to the Royal National Hospital for Consumption and Diseases of the Chest. London: Longmans, Green & Co. 1893.

The Essentials of Chemical Physiology for the use of Students. By W. D. Halliburton, M.D., F.R.S., Fellow of the Royal College of Physicians; Professor of Physiology in King's College, London; Lecturer on Physiology, London School of Medicine for Women; Author of Text-Book of Chemical Physiology and Pathology. London: Longmans, Green & Co. 1893.

Anæsthetics and their Administration; a Manual for Medical and Dental Practitioners and Students. By Frederic W. Hewitt, M.A., M.D., Cantab., Anæsthetist and Instructor in Anæsthetics at the London Hospital; Anæsthetist and Lecturer on Anæsthetics at Charing Cross Hospital; Anæsthetist at the Dental Hospital of London, and at the National Orthopedic Hospital. With illustrations. London: Charles Griffin & Co. Limited. 1893.

Manual of Physical Diagnosis for the Use of Students and Practitioners. By James Tyson, M.D., Professor of Clinical Medicine in the University of Pennsylvania and Physician to the University Hospital; Physician to the Rush Hospital for Consumption and Allied Diseases; Fellow of the College of Physicians of Philadelphia; Member of the Association of American Physicians. Second edition, revised and enlarged. Philadelphia: P. Blakiston, Son & Co. 1893.

Original Articles.

REMARKS ON SENDING PATIENTS AWAY FROM HOME.[1]

BY FREDERICK I. KNIGHT, M.D.

IN no department of medical practice, probably, has there been more hasty, ill-considered advice given than in that of climato-therapy. Thousands of patients go away every year at great inconvenience and expense, oftentimes with sacrifices which are never made good, who would have been far better off in every way, if they had remained at home.

Many of these go on their own responsibility, it is true, and it is no more strange that an invalid, having failed to obtain relief at home, should be attracted by glowing accounts of climate published by the proprietors of health-resorts, than that he should purchase and take any of the proprietary medicines so flatteringly advertised by the press, medical, secular and religious. Many, also, are guided by the advice of friends, and there is no subject on which the layman with slight personal experience feels more competent to give advice. We all know how ready some of our patients are to honor us by freely praising and lending to their friends prescriptions we have endeavored to carefully adapt to their individual conditions. In the same way many people having been properly advised, to their benefit, in regard to climate, are not satisfied till they have persuaded all their friends, whom they know to be out of health, to try the same. I am well aware that all patients do not do this, for I have known not a few who, when written to, as patients who improve by change of climate invariably are, decline to advise, and refer their correspondents to some competent authority for counsel.

It is strange, however, that more care is not exercised by physicians, who take it upon themselves to prescribe change. Sometimes advice is given on the street without the slightest exact knowledge of the patient's condition (I have known applicants for life-insurance to be passed in the same way). It also not unfrequently happens that the physician, having exhausted all his resources in vain, is tired of his patient, and his patient is tired of him, and being aware of this, and that his patient is liable to desert him at any moment for his rival, advises change, without much consideration of the place to which he is to go.

The consultant frequently receives a call from a country patient bringing a card, or saying he was recommended by Dr. A. He feels flattered at the consideration of Dr. A. in sending him one of his richest and best patients for consultation. When the examination is over, the diagnosis made, and it is proposed to communicate with Dr. A., the patient says: "Oh, Dr. A. is not my doctor! Dr. B. is the one we always employ; but Dr. A. told me that I had better consult you." In the same manner Dr. A. advises the patients of Dr. B. that they had better not risk another winter in New England, but get off somewhere.

What is it necessary to know in order to advise patients properly in regard to change of climate? In the first place, it is necessary to know the condition of the patient. In this regard it is not enough to know that he has tuberculosis, or laryngitis, or bronchitis. Treating the name of a disease by climate is no better than treating it by medicine. Colorado is good for some cases of tuberculosis; so is cod liver oil; but either may be very bad. I have been not unfrequently consulted by patients, who have either made up their own minds, or have been advised to make certain changes, and who seem to come for a formal endorsement of what they have already decided to do. A few years ago I was asked to see a lady and her invalid daughter at one of our principal hotels. On calling, I found that by the advice of their family physician they had rented their comfortable home, and were on their way to Colorado for the purpose of restoring the health of the daughter. On examination, I found the patient in the last stages of phthisis, with only a few weeks to live. I advised their going home; they had already given that up; but they did not go to Colorado. Last month I was asked to see a patient, with reference to Colorado, who had pneumothorax of one side, and disease also of the opposite lung.

Even patients with such advanced disease are not always amenable to advice. A few years ago I persuaded a gentlemen, who came to me with his heart set upon the Rocky Mountains, to spend the winter in Nassau. He did exceedingly well there. The next season he avoided me, and slipped off to Colorado, and promptly died.

A lady once came to me with her young son, who had been sent East from the Rocky Mountains the year before on account of heart disease. The physician, under whose care he had been in the East, had pronounced him "all right," and they were on their way back to the high altitude. They took me in on the way for confirmation of this opinion and action. It did not take long for me to convince myself that it was *all wrong*, and so I said with regret, to the mother. As they were going to Philadelphia, I advised her to visit two physicians there, whom I mentioned, not to say anything about my opinion, nor of that of one Philadelphian to the other, and if we all agreed in opinion that the boy should not go back, I should expect her to be satisfied to stay East another year. She did as I requested, and as we agreed without reference to one another, remained East.

It is necessary, in the second place, in order to give proper advice in regard to change of climate, to have some knowledge of the condition of the climate into which it is proposed to send the patient, and of its probable effect on his condition. In many cases, it seems as if it were sufficient that a place had a certain general reputation as a health resort for physicians to send patients thither, no matter what their individual condition might be. In this way, patients with advanced phthisis, and patients with degenerate heart and blood-vessels are sent into high altitudes, and, on the other hand, patients with incipient tuberculosis of the lungs sacrifice golden time by being sent into moist tropical countries. Something should be known, also, of the variation of climate at different seasons of the year. Because certain parts of our country are delightful in the autumn or spring, it by no means follows that they make good winter resorts; and, on the other hand, many a patient has lost all the gain at a winter resort by ignorantly remaining too late in the spring. The usual range of temperature for different seasons should be known, as well as the average amount of moisture in the air, the amount of sunshine, prevalence of winds, etc.

In this connection it is well to consider the social

[1] Read before the Boston Society for Medical Improvement, October 23, 1893.

conditions in which the patient will be placed, and especially the quality of the food which he can obtain. There are patients with good appetite and digestion, who will thrive on the canned food of the sheep-ranchman, but there are many who are only helped downhill by it.

It is well, also, to consider in a general way the suitability of the climate for the wife or other relative who must go along with the patient. It may be that she will be found to have a fatty heart or some other condition, which will absolutely forbid the climatic change proposed.

Again, it having been determined that there would be a risk in remaining at home, as compared with taking advantage of a change of climatic conditions, a very serious and seldom considered question arises, Can the patient properly make the change? This is often a question of expense, and should be ascertained, when possible, before mentioning the subject to the patient himself. It is cruel to set forth the great advantage of change of climate to one to whom it is utterly impossible to accept your advice. To advise a wife that going to Europe is the one thing that will restore her health, when this gratification is wholly beyond the ability of the husband, is very reprehensible, and may lead to unnecessary hard feeling in families.

Here comes in the question of a short, temporary change, or long-continued or permanent residence away. Short, temporary changes may suffice for the relief of acute conditions, but rarely for chronic ones. A patient may afford a short change, who cannot afford a long one. It is a very rare thing, though I have seen such cases, that one season's residence away from this coast will suffice for the arrest of pulmonary tuberculosis, however slight. It may not always be wise to tell this to the patient beforehand, but the fact will have its weight on the physician's own mind. Another consideration which has an important bearing is whether the patient can engage in any occupation. While it is undoubtedly better for most patients to do nothing for the first six months or year, there are certain out-door employments which may be pursued without harm. It is therefore important to know something of the nature of an occupation and its fitness for the case under consideration.

For instance, the digestion and mental temperament will have to be carefully considered in case it is proposed to put a patient on a sheep-ranch, where the life may be like this. Two men live in something which they have erected for a house, miles from anybody else. In the early morning these men rise, cook such a breakfast as they can, also the dinner which each takes with him, one walking east and the other west, till noon, when each eats the dinner which he has brought, turns round and walks "home" to meet his companion, takes supper and goes to bed, never seeing any human being for weeks but the same old chum, and him only at night. Weak lungs may stand this, but it takes also a strong stomach and a healthy brain.

So it may be said, in brief, that in order to advise properly in regard to change of climate, the physician should know:

(1) The exact condition of the patient, as far as it is possible to determine it.

(2) The condition of the climate and its probable effect upon the condition of the patient.

In this connection it is well, also, to consider the social surroundings in the proposed resort, and the food which it will be possible to obtain.

(3) The condition of those who must necessarily go with the patient, and the probable effect of the new climate upon them.

(4) The pecuniary condition of the patient in reference not only to his getting to his destination, but in regard to his ability to stay there long enough, and to provide what will be necessary for himself and family. This should be ascertained as far as possible without consultation with the patient, and before the subject of change of climate is mentioned to him.

A CÆSAREAN SECTION FOR TWIN MONSTROSITY: RECOVERY.[1]

BY JOHN F. CROSTON, M.D., AND MAURICE D. CLARKE, M.D., OF HAVERHILL, MASS.

By Dr. Croston.

At 9.15 on the morning of Monday, July 17, 1893, I was called to see Mrs. ——, aged twenty-four, primipara, who had come to full term, and who gave a history of having had labor pains since the previous Saturday, and had very likely been in labor about twelve hours. She was a person of slender physique, but had always enjoyed good health, nothing untowards having happened during the pregnancy except at the beginning of the fourth month, when she had a slight hæmorrhage from the uterus, which was controlled in a couple of days by opium and rest in bed. The family history was good; and she remembered nothing unusual in the labors of her sisters or near relatives, and had no knowledge of plural births in their families.

She informed me that the "waters" had come away during the night; and, upon examination, I found the os dilated, the membranes ruptured, and the lower extremities of a fœtus, low down in the vagina, and with toes pointing backwards towards the sacrum, presenting. Her unusual size led me to make a careful abdominal palpation, which disclosed the presence, apparently, of another fœtus in utero. I advised immediate delivery, and set out forthwith to accomplish it, under chloroform anæsthesia. After several vain attempts to extract the fœtus by the extremities, it being impossible to bring the feet lower down than the vulvar orifice, I proceeded to make a second examination per vaginam. Carrying the examining finger well up, I found the extremities of the second fœtus impacted at the brim, and, going still farther, I recognized, for the first time, the fact that I had to deal with a monstrosity and that the fœtuses were joined at the trunk.

At this juncture I sought a consultation, and Dr. W. D. Collins came to my assistance. He agreed with me as to the diagnosis; and we made a second attempt to deliver the woman, but failed. Dr. Maurice D. Clarke, who had been previously sent for, arrived at this point; and, he agreeing as to the diagnosis, the question of operation was discussed, and the Cæsarean section chosen after mature reflection. The husband's consent was obtained with little difficulty, and the operation was performed immediately by Dr. Clarke.

By Dr. Clarke.

I examined the woman as soon as I arrived and found the condition described by Dr. Croston. I

[1] Read before the Essex North District Medical Society, October 11, 1893.

could see no use in further attempts to deliver after the ordinary fashion, and I agreed with the others that the question was one of a selection among operative procedures. There seemed, to my own mind, but three methods to be considered, — embryotomy, symphyseotomy, and a Cæsarean operation. The operations for the removal of the uterus and for delivery without incising the uterus (laparo-elytrotomy) were not considered and probably would not have been adopted. Of the others, the Cæsarean section appeared to us to afford the mother the best chance, embryotomy being likely to be complicated, tedious and difficult, if not impossible, while the cutting of the symphysis was not certain to allow room enough for delivery, to say nothing of other objections. For myself, I confess to a dread of a "loose" pelvis. As a matter of fact, the monster could not have been extracted entire per vaginam. So that we reached for ourselves the conclusion of the books, that the Cæsarean section is the operation for election by the average surgeon.

This point determined, I proceeded at once, upon Dr. Croston's invitation, to operate, with what might be termed comparative antiseptic precautions, by which I mean, that the woman's abdomen had not been soaked over night in antiseptics and was not washed with ether, that the operator's hands were not treated with oxalic acid and permanganate of potash, that neither dressings nor instruments had been previously sterilized by heat, and the ordinary living-room in which the operation was done had no previous preparation. On the other hand, the instruments were put into boiling water, the woman's abdomen was scrubbed with bichloride solution and the hair of the mons veneris shaved, and the hands of the operator and assistant were soaked in the mercurial solution. The patient was anæsthetized by Dr. Collins with ether, Dr. Croston assisting the operator. An incision of six inches in length was made in the linea alba below the navel, a rubber tourniquet tightened around the cervix, and the uterus at once incised. We were fortunate in not striking the placental site, and there was no hæmorrhage of moment. The monster was then pulled out with considerable difficulty on account of its previous impaction at the pelvic brim, and the placenta followed immediately. The elastic tube was removed, the uterine rent closed at once with eight deep silk sutures, the pelvic cavity hastily sponged with gauze, and the abdominal wound united with six deep silk sutures and four superficial ones, and covered with the usual dressings.

The little operative work that falls to the lot of surgeons outside of the large cities had suggested to me that a chief danger lies in shock from prolonged operations and continued anæsthesia, and it was my intention in this case to proceed with all legitimate haste and avoid at least this source of trouble. This intention may be said to have been fairly carried out, the giving of the ether having been begun at 1.10 P. M. and the patient being in bed at 2, and may have assisted recovery. For the rest, nearly everything seemed to favor it, the patient being a young and vigorous woman, in her first pregnancy, and not worn by a prolonged labor. The surroundings were not perfect, and the antiseptic precautions were not of the *fin de siècle* order (which may account for the temperature), but there was a trained nurse and good care.

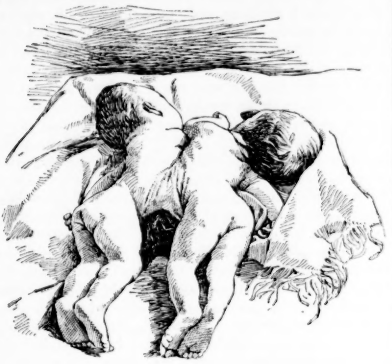
This case makes the eighty-seventh Cæsarean section in this country since the improved method of operating was introduced in 1882, according to the figures of Dr. Robert P. Harris, of Philadelphia, the recognized authority upon the subject. Of the first 43, 22 women and 6 children were lost; of the other 44, 13 women and 7 children were lost, the result in one case not being known. I have been unable to find abnormal size of the fœtus among the enumerated occasions for the operation, and I supposed at the time, and since, that this was the first ever performed on account of a monstrosity. In fact, Dr. Harris wrote me that no one in the United States ever delivered a monster by abdominal section and he did not know of a parallel in any other country. The mention of this case, however, brought to light the fact, as Dr. Harris has since written me, of an operation performed in Philadelphia in 1881, by Dr. James Collins and the late Dr. Philip Leidy and hitherto unreported. The monster was a double female, one having a unilateral hare-lip, and weighed fourteen pounds. One head, protruding, was amputated; the rest was delivered by the Cæsarean operation. The placenta was extracted by the vagina. The uterus contracted at once and there were six silk sutures inserted. The woman had been in labor five days, was much prostrated at the time of the operation, and died in three days of exhaustion. The uterine wound was well closed. With this information, therefore, this operation of mine loses in priority of performance, but retains its place as the first successful Cæsarean section for this cause.

BY DR. CROSTON.

After the operation the patient was put to bed, surrounded by hot-water bags, and, upon recovering from the effects of the ether, was given a teaspoonful of hot milk every half-hour, and brandy *pro re natâ*. Seven hours after the operation the temperature was 101.4° and the pulse 118. Morphine (gr. $\frac{1}{4}$) with atropine (gr. $\frac{1}{100}$) was given that night for the relief of pain and repeated in three hours, succeeded by three hours' sleep. On the morning of the second day the temperature had dropped to 99.2° and the pulse to 100, rising by evening to 102° and 106 respectively. Urine was passed normally. The morning of the third day found the temperature still at 102°, pulse 93, and the abdomen was markedly tympanitic and tender. One-half ounce of magnesium sulphate was ordered, to be repeated in four hours if necessary. The first dose proving ineffectual, a second was given, followed in two hours by a copious dejection. There were six movements in rapid succession, and the tympanites wholly disappeared and did not return. The dressings were changed on that day. On the morning of the fourth day the temperature was still 102°, but the pulse had dropped to 80 and was of good character. The nourishment was increased in amount, and beef-juice and egg-nog allowed. From this time on, the temperature continued to drop, becoming normal on the morning of the eighth day and so continuing until convalescence was fully established. The abdominal sutures were removed on the tenth day, union by first intention having taken place throughout the whole extent of the wound. From this time convalescence was uninterrupted, and at this writing (September 1st) the woman is perfectly well and able to do light work about the house. The menses appeared normally.

The composite fœtus weighed twelve and one-half pounds, and consisted of two females of equal size, each of the average size at full term and each gaping

widely from the pubes to the navel from incomplete closure of the lateral halves of the body, otherwise normal. They were dead when born. They were





united from the sternal notch to the navel in front, and from corresponding points on one side only, by a continuance of the skin, best shown by photographs taken on the spot. There was one cord and one placenta, both unusually large.

PLACENTA PRÆVIA AT THE BOSTON LYING-IN HOSPITAL.[1]

BY CHARLES W. TOWNSEND, M.D.

AMONG the 6,700 deliveries at the Boston Lying-in Hospital in the past twenty years there were 28 cases of placenta prævia recorded. This proportion, four per cent., is four times larger than that stated by Müller, of not quite one case to a thousand births, but is explained by the fact that difficult and abnormal cases are particularly apt to be sent to the Boston Lying-in Hospital, so that the proportion of these cases is necessarily increased.

Of the 28 cases, 15 were marginal or lateral, the placenta reaching to the border of the inner cervical ring; eight were partial, the placenta overlapping the os to a greater or less extent; and five were central, the implantation of the placenta being directly over the os.

The proportion of multiparæ to primiparæ, instead of being six to one as is usually stated, was less than two to one — 17 to 11 — the difference being due partly to the large proportion of primiparæ delivered in the hospital. The proportion of multiparæ was greater in the partial and central cases, there being three primiparæ to five multiparæ in the partial class and only one primipara to four multiparæ in the central class.

Marginal or Lateral Placenta Prævia, fifteen cases.

In four cases there was no hæmorrhage until there were recognized labor pains, while in eleven hæmorrhage was noticed at varying intervals before the advent of labor. Two of these flowed about once a month so as to simulate true menstruation; three began to flow in the seventh month, two at eight months, and three at eight and a half months. In one this point is not stated. Seven went on to full term, six gave birth prematurely at eight months, two of these being delivered artificially, and two gave birth at the seventh month, one of these being delivered artificially. The hæmorrhage was slight in six, considerable in four, profuse in three; while in six the records also spoke especially of the postpartum hæmorrhage.

As regards the treatment of these cases, the majority of the patients came to the hospital in labor with the history of flowing as given above, and proceeded to give birth to their children without artificial help; the diagnosis of lateral placenta prævia being made by examination. Others, labor not being present, were kept in the hospital under close observation, and later gave birth to their children without assistance. This non-interference method was practised in twelve out of the fifteen cases. Of the remaining three, in one case where there was considerable hæmorrhage at the eighth month, a colpeurynter was inserted, and the child was born in eight and a half hours. There was also considerable postpartum hæmorrhage in this case. Two cases were delivered by manual dilatation and version; one at the seventh, the other at the eighth month, both patients having lost considerable blood — one by slow dribbling, the other by a sudden gush of one and a half pints. In the former case manual dilatation took five minutes, in the latter fifteen minutes.

As to the results in these fifteen cases of marginal attachment of placenta: All the mothers recovered. One child, born naturally at the seventh month, died in two days. One born by version died in twenty minutes, probably due to the asphyxia owing to delay with the after-coming head. The child whose delivery at the eighth month was hastened by the colpeurynter was still-born.

Case 19 illustrates this class of cases. C. D., twenty-one years old, primipara, entered the hospital with moderate flowing about two and a half weeks before the completion of her pregnancy. A diagnosis of probable placenta prævia marginalis was made by the feel of the lower uterine segment and by the hæmor-

[1] Read before the Obstetrical Section of the Suffolk District Medical Society, March 22, 1893.

rhage. She was kept in bed a week, during which time there was a moderate leaking of blood. The hæmorrhage then ceased, and ten days later labor came on with moderate bleeding until the head came down and acted as a tampon. There was quite a severe postpartum hæmorrhage following the birth of the placenta. Mother and child were discharged well on the fifteenth day.

It may be said that the diagnosis of this class of cases is somewhat uncertain, and that some of them were simply cases of accidental detachment of a portion of the normally situated placenta. This error has been excluded as carefully as possible. In many of the cases the edge of the placenta was actually felt.

Partial Placenta Prævia, eight cases.

In two cases there was no hæmorrhage until labor began, at full term in one case, a week ahead of time in the other. In another case hæmorrhages or pseudomenstruation occurred twice a month throughout the entire pregnancy, which went on to full term. The remaining cases had hæmorrhages, first, at the fifth, sixth and eighth months and at eight and a half months and at full term respectively. Five were delivered at full term, only one of these by natural means; two at eight months; one by version; one spontaneously; and one without help at the sixth month. In this latter case there had been profuse hæmorrhages every day for three days, when the dead fœtus was expelled spontaneously, the edge of the placenta overlapping the head one-third of its extent. The hæmorrhage was slight in two, considerable in two, and profuse in three of these cases. In two, postpartum hæmorrhage was well-marked.

In the treatment of these cases of partial placenta prævia, the greater hæmorrhage demanded a greater amount of active interference. In three only the delivery took place spontaneously, the remaining five were delivered by internal podalic version, two having been first tamponed. All of the eight mothers recovered, and four of the infants; but four infants were still-born. Two of these infants were born spontaneously, two were delivered by version. It is fair to add, however, that of the two born spontaneously, one was non-viable, the other was macerated. Of the two still-born infants delivered by version, in one case there was a complicating ovarian tumor which had to be pushed out of the way before version could be done.

Case 24 is an example of the more severe cases of partial placenta prævia. A multipara (x), thirty-eight years old, was seen outside the hospital shortly after she had lost about a pint of blood by a sudden gush. She was at full term, and began at once to have labor pains. The os was two inches in diameter, and the edge of the placenta was easily felt. The vagina was packed with charpie as a temporary expedient while she was being brought to the hospital. Here she was at once etherized and easily delivered of a living child by version, the whole operation taking not much longer than one minute. A gush of blood followed the withdrawal of the arm used in turning, but the child's body acted as a tampon and stopped further bleeding. There was a moderate hæmorrhage immediately following the extraction, but the uterus contracted well and everything seemed all right. Three hours later, however, there was profuse bleeding, which was soon checked by a hot intra-uterine douche; but the patient went into an alarming state of collapse, became pulseless, the extremities cold, face blanched, heart sounds weak and irregular. The foot of the bed was raised, heaters applied, and brandy and other stimulants given subcutaneously. The patient was left in an anæmic condition, but made a good recovery.

Central Placenta Prævia, five cases.

This central form of placenta prævia is the rarest and the most serious form, so that it is worth while speaking of these cases more in detail. All of the five cases were delivered by version, a tampon having been first used in two of them. Three of the mothers died, two recovered. Four of the infants died, only one lived. It must be said, in palliation for these results, that all of the five cases entered blanched from loss of blood, two of the three fatal cases being almost in extremis. Such cases are sent to the hospital as a last resort, and in that way the fatal statistics are increased.

In one of the successful cases as regards the mother, a multipara (viii), thirty-four years old, there was no hæmorrhage until the eighth month when there was a sudden profuse flow. She was brought eleven hours later into the hospital plugged with a sponge and colpeurynter, she was extremely blanched, pulse 120 to 140, respiration 50. The os, which was about half an inch in diameter, was dilated manually in ten minutes, and the child delivered by internal podalic version. The child was dead and slightly macerated. The mother recovered after a moderate attack of septicæmia due, no doubt, to the manipulations outside the hospital and to the sponge introduced there.

Case 2, a primipara, had been flowing copiously at the eighth month for a week before she was sent to the hospital. She was delivered by podalic version without much loss of blood, but a secondary hæmorrhage occurred; she never came out of the collapse and died. The child was very feeble but was kept alive for two and a half hours.

Case 3, multipara (iv), twenty-six years old, had her first hæmorrhage at six months and three weeks, — a sudden gush while sitting on a vessel, the blood filling it one-half full. A week later she had a second severe hæmorrhage, and was brought to the hospital in a blanched condition. Manual dilatation of the cervix occupied fifty minutes, and the child was turned and delivered. During the delivery a large amount of blood was lost. The child gasped, but soon died. The mother went into a collapse, although there was no further hæmorrhage, and died in two hours.

Case 4, multipara (iv), thirty-four years old, had her first hæmorrhage, a small one, at seven and a half months. Two weeks later there was a profuse flow and she was brought into the hospital in a blanched condition. The os was at once dilated manually, in thirteen minutes the child quickly turned and delivered. It is stated that from one to two quarts of blood were lost during this procedure. The uterus contracted firmly and the patient appeared bright for an hour after coming out of the ether, and there was no further hæmorrhage. About five hours later, respiration became rapid, the pulse became small and thready and the patient died in twelve hours. The baby lived ten hours.

Case 5 I can speak of more particularly, as it occurred during my service two years ago. M. G., twenty-one years old, multipara (ii), when eight months advanced in pregnancy had several slight hæmorrhages, followed a week later by a very profuse one for which

she was tamponed by a doctor at 2 A. M. On entering the hospital at 1 P. M. the same day she was in a blanched condition, the pulse 100, weak and compressible, the fœtal heart about 210 and irregular. The patient was at once etherized, placed in a position for operation and the packing removed. The os was found to be about one and a half inches in diameter and completely covered by placenta. While satisfying myself of the diagnosis of central placenta prævia, the blood suddenly spurted out copiously by my hand. Without withdrawing my hand I at once peeled off the placenta on the left border, quickly finished the dilatation of the os and passed my hand up around the placenta. The child was easily turned, and the half breech at once checked the hæmorrhage. The child was quickly delivered and the head was followed immediately by the placenta. The uterus contracted well, but in all at least a quart of blood was lost, and there was considerable postpartum hæmorrhage, which was controlled by pressure and friction externally, and by a hot intra-uterine douche. The child was anæmic and did not cry at first, but recovered, and was with the mother discharged well on the fourteenth day.

The following table gives an analysis of these 28 cases of placenta prævia:

TABLE OF TWENTY-EIGHT CASES OF PLACENTA PRÆVIA.

	Lateral or Marginal. (15)	Partial. (8)	Central. (5)
No hæmorrhage until beginning of labor.	4	2	0
Hæmorrhage every month.	2	1	0
Hæmorrhage first at fifth month.	0	1	0
Hæmorrhage first at sixth month.	0	1	1
Hæmorrhage first at seventh month.	3	0	1
Hæmorrhage first at eighth month.	2	1	3
Hæmorrhage first at eight and one-half months.	3	1	0
Hæmorrhage first at ninth month.	4	3	0
Delivery at sixth month.	0	1	1
Delivery at seventh month.	2	0	0
Delivery at eighth month.	6	2	4
Delivery at full term.	7	5	0
Hæmorrhage, slight.	6	2	0
Hæmorrhage, considerable.	4	2	0
Hæmorrhage, profuse.	3	3	5
Hæmorrhage, postpartum.	6	2	2
Delivery natural.	13	3	0
Tampon used.	1	2	2
Delivery by version.	2	5	5
Mothers recovered.	15	8	2
Mothers died.	0	0	3
Infants lived.	12	4	1
Infants died.	2	0	3
Infants still-born.	1	4	1

THE IMPORTANCE OF EARLY ATTENTION TO THE DISABILITY CAUSED BY INFANTILE PARALYSIS.[1]

BY A. B. JUDSON, M.D., NEW YORK.

I PROPOSE to consider briefly the question whether a certain class of patients should not be committed more entirely and more early than they are to the care of the orthopedic surgeon, a consideration as interesting to the family physician as to the orthopedist, as they meet in friendly alliance to secure the greatest benefit for their common patient.

I refer to the patients disabled by infantile paralysis. The child has passed through the stage of onset.

[1] Read before the New York Academy of Medicine, November 2, 1893.

Ergot, electricity and massage have produced their legitimate effect, and we will say that the eighteen months, which are believed to be the limit of spontaneous recovery from the paralysis, are passed. The friends and the patient, with many grievous misgivings, have become reconciled, or at least accustomed, to disability and deformity which now seem to change for neither the better nor the worse. What can now be done? The question whether such a patient may not yet receive benefit from the advance of scientific knowledge, or from the daily increasing facilities for the application of knowledge, will surely spring up in the parental heart.

Now it is curious to note that the deformity in these cases is often found, upon analysis, to be a disability more than a deformity. Take a case, for example, in which the knee cannot be completely extended. When the patient is sitting there is no deformity, but when he stands the apparent deformity is due to a disability — an inability to extend the knee. How easy it would have been to prevent contraction of the hamstrings by providing for their repeated elongation by complete extension of the knee, easy, comparatively, for one who has given himself to such details, and is habitually mindful of their importance and free from the manifold cares which beset the average practitioner. And it should be borne in mind that cases sometimes occur in which shortening of the tendons begins, in a manner not well understood, at a very early stage, before simple desuetude can be fairly accused of being the author of the mischief. The prevention of muscular and tendinous shortening, then, should receive attention on the part of the early observer of the case. It is not an obscure and difficult point, but one which has, perhaps, escaped the consideration to which it is entitled.

To recur to the disabled knee, and this part of the anatomy is used simply as a convenient example to illustrate points in pathology and treatment applicable to all the joints, if the knee is kept extended at those times when walking is attempted, not only are the muscles and tendons kept in normal elongation, but the general welfare of the limb is assured. Neglected patients may be seen in the streets walking laboriously with extension of the knee produced by the hand pressed firmly at every step on the lower part of the thigh when the weight of the body is on the limb. It is doubtful whether this in any case prevents the final resort to a crutch, by the use of which the limb is made to dangle, being carried about as a worse than useless burden, twining limp around the crutch, subject to the painful affections which attack the lower extremities in cold weather in the absence of healthy circulation, and more and more impeding locomotion, until, as has happened many times, the adult patient seeks relief and improved locomotor ability in amputation and an artificial limb. If the knee is stiffened mechanically, the pressure of the weight of the body in standing and the repeated concussion of the limb, as the foot strikes the ground in walking and running, will improve the tardy circulation; but beyond this, and better than this, will be the development of unused muscular fibres and special groups of muscles, by whose action important motions will be acquired which would have been impossible if the limb had remained in suspension.

Now, in order to keep the knee firmly extended under the weight of the body in standing and walking,

and to give use and development, as far as may be, to the fragmentary muscular system of the limb, apparatus is required; but it will not be obtained without authoritative medical advice and prescription, and, as a rule, the family physician cannot be expected to work out the tedious processes incident to treatment of this kind. It falls to the lot of the specialist, who can well bear the inconvenience attending final results which are more or less imperfect, after satisfying himself that he has done all that science permits to be done, and whose daily and hourly mastery of the necessary details has enabled him to reduce perplexing and complicating conditions to familiar routine. Treatment of this kind lies far outside ordinary practice, in which the physician renders such signal service. He makes his diagnosis, advises, prescribes, remains on guard against complications, foresees the crisis and prepares for it, leads the way cheerfully through convalescence; and medical science, so dear to us all, finds but another illustration of its power and beneficence. In one home a wasting fever has been finally resolved, and the patient rises in customary, or even improved, health from a bed where the grim alternative has been decided in his favor. In another, the children have been happily carried through the perils of infection, and resume their places at the table. But in the special practice adapted to the cases under consideration, there is no fear of a fatal result and no rejoicing, and the object sought is at the best a palliation. But who will say that important service has not been rendered? for it should be remembered that the conservative and plodding practitioner along his line has for an ally one of the most potent influences in Nature in the growth of the body. The popular reliance on this force, expressed in the common question, "Will the child outgrow the ailment?" whatever it may be, is not always misplaced. Happy the physician who, imparting his confidence to the patient's friends, and relying on the exact science of the physicist, sees grace and power growing out of deformity and helplessness.

A good general rule in the treatment of deformity in a growing child is to keep the part as near as possible in the desired shape as much of the time, day and night, as is practicable, so that the increment shall be on the right side of the dividing line between the normal and abnormal. The familiar proverb says: "As the twig is bent, the tree's inclined." In the troubles following infantile paralysis the principle should be extended. We should not only persist in keeping the part as near the normal shape as we can, but we should also give as wide play as the crippled condition of the limb will allow to the functions of motion and weight-bearing. From the very earliest attempt to walk, or to make use of the muscles and joints which are imperilled by the cord lesion, extraneous assistance should be afforded. It should not be said, off-hand, that the child is too young. The first and repeated question should be: Is the child not yet old enough, or is he not already giving sufficient evidence of a desire to make use of the questionable muscles and joints to make assistance desirable or necessary?

When efficient treatment is begun it is easily continued. Improved ability is at once appreciated by both parent and child. It is well that such is the fact, for improvement does not stop with infancy or childhood. The process is slow and prosaic, but the benefit cannot be over-estimated in the opinion of the one who is in the best position to judge of its value. A slight improvement in the gait, or an ability to walk a little faster or a little farther without fatigue, confers lasting happiness, and the patient and physician are thus encouraged to go on to new achievements, until, with one step after another gained, the outcome is an adult well able to follow the ordinary pursuits of life, in place of a being who had looked forward to hopeless dependence.

Clinical Department.

TWO CASES OF ACQUIRED COMPLETE ATRESIA OF THE VAGINA.[1]

BY RUFUS A. KINGMAN, M.D., BOSTON.

Mrs. N. E., widow, thirty years of age, was born in Prince Edward's Island, and had worked as a cook. She was admitted to the St. Elizabeth's Hospital, July 29, 1891.

Eight years before she had been delivered of her first and only child, the labor lasting four days. The puerperium was marked by fever, with pain and tenderness over the abdomen, lasting for four weeks. During this time the urine trickled away through the vagina, but this ceased gradually and did not recur.

Menstruation never returned; but once a month there was increase of pain in the back and lower abdomen, the backache never being wholly absent during the eight years.

Two months before her admission to the hospital she had been operated upon by a surgeon in a neighboring city, he having found complete closure of the vagina, and she being anxious to remarry. The operation did not result satisfactorily, the bladder being opened and the cervix not being found. A second attempt, a week later, had resulted no better. The opening so made had been kept open by the daily use of a glass plug; but the surgeon leaving town for the summer, referred the patient to me for further operative treatment.

Examination, under ether, on August 4th, revealed an opening into the base of the bladder which easily admitted three fingers. Beyond this there extended a small cicatricial pocket about one-half inch deep. The lower part of the urethra was missing. By the rectum it was easily discovered that the uterus was small, and that it was lying in the second degree of retroversion. Between the cervix and the rectum there seemed to be an elastic tumor about the size of an egg.

This tumor I supposed to be the remaining portion of the vagina filled with fluid. An aspirator needle was introduced from the top of the artificial vagina, and what appeared like thick pus entered the tube. On the assumption that this was retained leucorrhœal secretion, an opening was made beside the needle with sharp-pointed scissors, and about two ounces of this purulent fluid were evacuated. The finger passed through this hole into a cavity with a smooth lining, containing at its upper margin a small projecting button, which could be nothing but the atrophied cervix.

Directing the finger downward toward the perineum, a knife was entered just below the existing opening,

[1] Read before the Obstetrical Section of the Suffolk District Medical Society, March 22, 1893.

and was made to cut down upon the finger-tip. In this way an entirely new vaginal entrance was obtained, and a flap of tissue was raised to cover in the base of the bladder.

After freshening surfaces wherever necessary, this flap was secured in place by sutures, the opening made beside the needle being closed by one purse-string suture. The remnants of vaginal mucous membrane were now dissected up and united as closely as possible to the external skin. Iodoform powder was dusted over the wound, a sigmoid catheter was put in the bladder, and the knees were tied together.

Four days later the catheter was finally removed, and the patient passed water voluntarily, though a moderate amount of leaking continued for several days longer. The stitches were removed on the eleventh day, and from that time she had perfect control of the bladder, holding her water for two and even three hours at a time.

A plug was used a few times, but the patient soon left the hospital and returned to the care of her former physician.

I had the privilege of examining her once again during the following winter, when I found the condition just as I last saw it, save for a tight ring of cicatricial tissue just at the entrance where the mucous membrane and skin were separated by a narrow interval. This condition could very easily have been remedied by a trivial operation, but further treatment was not then permitted.

The second case is that of a physician's wife, fifty-two years of age, who has always enjoyed perfect health, and only consulted me because of the fear felt by her husband that there might be commencing malignant disease of the uterus. She had had two children, the youngest being twenty-three years of age. Menstruation had been perfectly regular up to within a few months, and without pain or discomfort. For a month there had been a slight but continuous bloody discharge.

I was told that for years the vagina had been shallow, but that recent examination had shown a puckering and apparent closure of the upper portion. This fact I confirmed readily enough, the vagina ending in a blind pouch about an inch below the cervix, marked by a dimple or depression which admitted a small probe, through a sinus, into a pocket which surrounded the cervix.

Operative interference was advised, and a few days later was undertaken. The sinus was slit laterally with a tenotomy knife, guided by a lachrymal director. It was then stretched widely with sinus dilators, and the finger explored the pouch beyond.

The cervix proved to be deeply lacerated on both sides, the scars involving the vagina so extensively as evidently to give sufficient explanation of the stenosis. The cervix and vagina had formed such extensive adhesions as almost wholly to obliterate the vaginal portion of the former. After peeling off these adhesions with the finger, the stenosed portion of the vagina was still further incised and was then packed with iodoform gauze.

The progress to complete recovery was rapid and painless. Some slight narrowing of the vagina still exists and the cervix has not been operated upon, but the patient has not one single symptom referrable to her condition, so does not at present desire operative interference.

As regards the causes of the atresia in these two instances, there can be no doubt. In the first case a long second stage resulted in sloughing of the soft parts, how extensively we cannot say, but certainly so as to cause a vesico-vaginal fistula. Then there was probably a septic condition which favored either extension of the slough or of a neighboring vaginitis, with resultant cicatricial contraction, or more likely plastic adhesion of the walls of the vaginal outlet. At the same time a septic ovaritis destroyed the functional activity of the ovaries, and menstruation ceased.

In the second case, the tears of the cervix extended far into the vagina on each side, so as to almost close it, either by their contraction, by direct adhesion, or, as I think most likely, by both processes combined. Partial retention of menstrual discharge and of the normal secretions, set up a sharp vaginitis, which increased the contraction and developed fresh adhesions.

I have no desire to enter upon a discussion of the general subject of atresia vaginæ, whether congenital or acquired, but in view of the infrequency of the latter condition, I have thought that a brief report of these two cases might prove not only interesting, but instructive. There is nothing in the management of either case which calls for especial notice, unless it be worthy of remark that so much was accomplished in the first case as the result of a single operation.

It is worth our while, however, to consider that in each case a proper appreciation of the condition at the time of injury, would have suggested treatment which could not have failed to prevent any such complete closure as has been described. Of course, every one now examines to see if the perineum has suffered injury during labor, and most men practise immediate suture where, according to their judgment, it seems called for. But if these cases teach anything, they teach the importance, not only of a more careful supervision of the puerperium than is commonly practised, but the value and the absolute need of a vaginal examination before the final discharge of our parturient patients.

The best time for such an examination is near the end of the puerperal month, and no notions of convenience or of prejudice on our part, or of false modesty or timidity on the part of the patient, should be permitted to interfere with the performance of our manifest duty.

A PECULIAR CASE OF ACQUIRED ATRESIA OF THE EXTERNAL OS UTERI.

BY BARTON COOKE HIRST, M.D., OF PHILADELPHIA.

MRS. E., aged forty-eight, married twenty-five years, never pregnant. Eight years ago the menstrual flow was absent for about eight months; after one reappearance, it did not return for a year; then again for nine months; and again for a year, since which time there has been no menstruation. Two months ago the woman began to experience discomfort in the lower abdomen. This became rapidly worse until the abdominal walls in the hypogastric and iliac regions were painful to the touch. With the increase of pain there developed very marked dysuria and irritability of the rectum.

On digital examination, a large cystic tumor was felt, filling up the entire pelvic cavity. It was impossible to find the cervix by the sense of feel. On inspection, a very slightly projecting nipple could be

seen in the centre of the vaginal vault, and a small dimple could be detected at the site of the external os. The diagnosis was plain.

Under ether, a trocar and canula were pushed through the cervix into the uterine cavity. On the withdrawal of the former, a stream of coffee-colored fluid was projected several feet from the woman's body. More than a pint was evacuated. The uterus contracted vigorously, and directly after the fluid ceased to flow its internal measurement was two and one-half inches.

The interesting and peculiar features of this case are the entire absence of a cause for the atresia; the menstrual history suggesting the menopause; the slow accumulation of fluid and late appearance of symptoms — five years after the cessation of menstruation.

A CASE OF RECURRENT PARALYSIS OF THE OCULO-MOTOR NERVE.[1]

BY EDWIN E. JACK, M.D.,
Ophthalmic Surgeon to Out-patients, Boston City Hospital; Assistant Ophthalmic Surgeon, Massachusetts Charitable Eye and Ear Infirmary.

The patient, a Swedish woman, twenty-six years of age, was first seen April 14, 1893. Some weeks previous to this she had been at the Infirmary, where the diagnosis of paralysis of the third nerve was made. She was an average-sized and healthy-looking woman, and with the exception of the present trouble, said she was and always had been perfectly well. She had measles when young, but nothing else. No history or physical signs of syphilis. Bowels and menstruation normal. The mouth and nose were slightly drawn up to the left, but a careful examination by Dr. J. J. Thomas showed no paralysis of any branch of the facial. The ears, examined by Dr. F. L. Jack, showed signs of hypertrophic catarrh. Hearing subnormal in left. The father is alive and well. The mother, who died twelve years ago at the age of about forty-five, of "rheumatism and dropsy," suffered with headaches during her life. Whether they were migrainous in character could not be told. Two brothers and two sisters are well.

Toward the end of January last, patient was taken with sudden and severe pain in the left brow, temple, cheek and side of nose. The pain was described as dull, like the blow of a hammer. With the pain there was loss of appetite and vomiting. This lasted for two or three days, during which time patient was in bed. During the first day the left lid began to droop, and in a day or so there was complete ptosis. In the course of two weeks the lid could be raised so as to uncover the pupil, and then there was diplopia, which has persisted in some degree till now.

Examination of the eyes April 14th: O. D. normal; V. = 1; H. O. S. — fundus normal. Pupil well dilated. Reaction to light extremely slight. Associated action with accommodation very feeble. V. = 0.1 — the poor vision being due to an almost total paralysis of the accommodation. With a rough correction of the refraction, V = 1. There was diplopia everywhere except in the lower part of the field from just within the extreme right to the extreme left. O. S. did not move in perfectly. On quick convergence it tended to lag behind and on looking quickly at a distance it deviated outward slightly. Marked limitation in upward movement, movements outward and downward normal. There was apparently a very slight ptosis. An examination October 12th showed practically the same conditions, except that there was no diplopia on the horizontal line.

Attacks similar to the one just described and with the same accompaniments, have occurred many times during the last ten years, beginning therefore at about the age of sixteen. Some years there have been only two or three attacks and in some five or six. In the last five years more than before, but within that time there has been no increase in frequency. The last interval, nine months, is the longest that has ever occurred, so that this year is likely to prove an exception to the previous ones. For the first few years there was no paralysis between the attacks, but the last four or five, the dilatation of the pupil, the paralysis of accommodation and in some degree the diplopia on looking upward, have been permanent. The ptosis and diplopia in the middle of the common field have usually disappeared within two or three weeks. The last time though a certain amount of ptosis remained for two months and the double vision in the middle of the field lasted longer than formerly; this has been the tendency lately. There has never been any connection with menstruation and never any headache between the attacks. The pain is limited to the region stated, never reaching to the occiput. There is a feeling of heat and sometimes of cold, but no chills. The pain comes on suddenly, without warning, and does not seem to be brought on by anything patient eats or does.

The earliest reported case of this kind was that of Gubler in 1860. Mauthner has published the account of a case seen in Graefe's clinic in 1864. With these exceptions all the cases, about twenty-eight, have been reported since 1882. Of these the majority, fifteen, are females. The age at which the attacks first came on varies from eleven months to thirty-one years, the greater number being under fifteen. In a few the age is not stated. In eleven the right side was affected, in sixteen the left, one doubtful. In most of the cases headache and vomiting preceded the paralysis, in some there was no vomiting, and in a few dizziness was present. Other symptoms occurred in separate cases, such as paresis of arm, trouble in articulation, tenderness in the region of the branches of the fifth, tinnitus and transient deafness, a twitching pain down arm and leg on opposite side, salivation and a general feeling of discomfort before the attack. The pain in most instances resembled that of migraine; in a few it was limited to the region around the eye, or in supraorbital nerve, and in one the whole head was involved. The duration of the attacks varied in different cases and in the same case from a few days to six months. The figures given, however, refer in some cases to the duration of the pain and in some to that of the paralysis. The intervals also varied, two weeks and four years being the limits. In at least sixteen, the attacks became worse and lasted longer. In all of these the paralysis, to some extent, became permanent. In a few only did the severity of the attacks decrease. In Von Hasner's case, the trouble came on before the establishment of the catamenia, later the attacks were coincident with them. In no other instance, I believe, has this coincidence been observed. In Dr. Wadsworth's case, toward the end of the headache, there was a discharge

[1] Read before the Boston Society for Medical Improvement, October 23, 1893.

of ill-smelling fluid from the right ear. The child had chronic suppurative otitis. Here there was evidently a close connection between the attack and the ear trouble. The sister of this patient had become blind from post-neuritic atrophy, the neuritis having been brought on by meningitis from aural disease. In one case contraction of the fields of vision during an attack was observed.

Senator divided these cases into two classes, the purely periodic with no symptoms between, and the periodic exacerbating ones. The doubt has been expressed, however, whether there ever has been a purely periodic case, it being claimed that a careful examination would always reveal some paralysis persisting. Charcot suggested the name "ophthalmic migraine," from the supposed analogy to migraine. Another suggestion has been to change the name to "recurrent ocular-motor paralysis" because of the different length of the intervals. Finally, it has been recommended to do away with the artificial division into exacerbating and purely recurrent paralysis, on the ground that the cases with a free interval later acquire some permanent paralysis.

The point of chief interest and importance is the nature of the trouble — functional or organic — and if organic, the kind and seat of the lesion.

Some have thought it functional, the analogy to migraine being strongly insisted on. Others have supposed a circulatory disturbance, which later gives rise to some permanent lesion, perhaps inflammatory in its nature. Von Graefe attributed the results in his case to a probable fracture of the base, which could have been followed by an ostitis or exostosis, this by inflammatory enlargement at times pressing on the nerve. He concluded that a progressive anatomical lesion was probable in every case. This was Manz's view also. Möbius and Von Hasner thought that in most instances the nucleus of the third was affected. Möbius referred the pain to an involvement of the descending band of fibres of the fifth, which lies above and a little to the outer side of the third nucleus. Mauthner and Manz inclined to an extra cerebral lesion.

In three cases there have been autopsies. In Gubler's case, which died in the fourth attack comatose, there was exudation around the right motor-oculi along the base of the brain and a blood-clot in the pons. Weiss' patient died of phthisis. The third nerve as it left the peduncle was flattened, grayish and covered with numerous granulations which contained tubercle bacilli. Thomsen's case died in an insane asylum. The right motor-oculi where it passed through the dura was gray and club-shaped; a fibro-chondroma had separated the fibres of the nerve but had not destroyed them.

The present case seems to throw but little light on the subject, except to emphasize the fact that the tendency of the disease is toward a persistence of the paralysis between the attacks. It is difficult to think of such a disease as functional, but there are certainly strong resemblances to migraine. The character of the pain in most instances and the accompanying disturbances in some are very similar. There have been though, as far as I know, no visual symptoms spoken of, such as are so frequent in ordinary migraine. Heredity and neuropathic tendencies are not so distinctly traceable. The occurrence of attacks in one case under the same conditions as previous epileptic seizures and the substitution of an ordinary migraine headache for a paralytic attack are suggestive. But the persistence of the paralysis points distinctly the other way. The history of Dr. Wadsworth's case is strongly indicative of organic trouble. It is not possible either to ignore the post-mortem findings in the three cases spoken of. In all these the nuclei were healthy, the lesion basilar.

It seems impossible that any process in the neighborhood of the nuclei, lasting so long, could affect the nuclei of the third without that of the fourth lying next to them or the neighboring third nuclei on the other side of the median line. Certainly the known nuclear ophthalmoplegias do not act in that way. It may be that there is no common cause for these disturbances, and it may be also that the seat of the trouble varies.

The prognosis, as far as it concerns improvement of the condition, must be considered bad.

THORACOTOMY IN A CASE OF EMPYEMA FOLLOWING PNEUMONIA.

BY J. C. HILL, M.D., ROCKLAND, ME.

IN the early summer I was called to see Mr. N. B., aged sixty-three. The wife of the patient informed me that her husband, up to the time of my visit, had been without medical attendance, and had been confined to his bed for over two weeks. Her description of the case outlined very clearly a case of lobar pneumonia.

For the twenty-four hours preceding my appearance upon the scene, the patient had been having very pronounced and protracted chills. I found him with a temperature of 106°, and a pulse of 98, which was weak, steady and intermittent. The eyes were sunken and dull, the countenance livid and greatly emaciated; and the patient was fast succumbing to the malady which was seated upon him. Percussion and auscultation showed marked dulness over anterior and posterior region of lower right lobe of lung. There was noticeable bulging of the right thoracic wall. Patient was having night sweats, a constant cough, and expectorated a large amount of yellowish-gray matter.

Having satisfied myself that I had to deal with a case of empyema, I made an incision into the pleural cavity, two inches in length, in the seventh intercostal space, in front of the latissimus dorsi muscle, and immediately pus welled out of the opening until two pints had been accumulated in a pus-pan at his side. I inserted a drainage-tube (the siphon arrangement under water), and leaving stimulants, both diffuse and cardiac, left the patient for the night.

The following morning the temperature was 100°, and the pulse down to 80. The heart action was stronger and less intermittent. A quantity of pus was drawn out during the night, and lay congealed at the bottom of the receptacle. I removed the tube, and irrigated the cavity with a 1–5000 corrosive sublimate solution. The patient expressed himself as feeling greatly relieved. I put him upon hydrarg. corr. chlor., gr. $\frac{1}{10}$, t.i.d., kept up the stimulation, and prescribed extract of malt in wine-glass doses every two hours. The process of irrigation was repeated every other day for ten days, then twice a week. The discharge gradually grew less in quantity until at the end of the second week the flow ceased entirely, when I allowed the incision to heal.

The patient made visible improvement from date of

operation. The chills discontinued, and in five days from the time the pleura was incised the temperature reached and maintained the normal figure. The corrosive chloride was omitted after the second week, and not resorted to again — iron, arsenic and strychnia being substituted. A rapid convalescence was reached and the patient is now, in spite of his age, vigorous, active, and in good health.

Medical Progress.

REPORT ON DISEASES OF CHILDREN.

BY T. M. ROTCH, M.D.,
Professor on Diseases of Children, Harvard University.

AMÆMIA OF MINERS IN CHILDREN.[1]

A GRAVE form of anæmia is produced by the presence of a worm in the intestine, the Anchylostonum duodenale, first described by Dr. Dubini, of Milan. The author has been able to observe twenty-one cases in children below the age of eleven. Intestinal symptoms are more common than in other forms of anæmia. The anæmia becomes rapidly worse. The fæces are very variable, often diarrhœic, sometimes streaked with blood; in other cases the stools are normal. The diagnosis is based entirely on the examination of the fæcal material, in which the eggs of the anchylostome are found. These are characteristic, being in segments — mono-, bi-, poly-cellular. The eggs of the ascarides lumbricoides often accompany those of the anchylostome. The disease arising in an infected locality (such as mines, collieries), the presence of other anæmics in the family, especially if among them there were miners or men in similar work, the resistance of the disease to different treatments, point to the diagnosis, and this is determined by the microscopical examination of the fæces. The treatment is by the ethereal extract of malefern. The dose in children should not exceed four grammes, and should be given in an emulsion of some essence to conceal the disagreeable taste. It is necessary to repeat the treatment several times (four or five) at intervals of two to three days. As a contribution to the pathogeny of this form of anæmia, numerous experiments upon animals were made, which demonstrated very beautifully the auto-intoxication which takes place. After having prepared the toxine of the urine from two patients, after the method of Brieger-Otto, rabbits were inoculated with progressively increasing doses. The animals presented, from the first injections, all the characteristic symptoms of the anæmia in question. Quickly, upon stopping the injections, the animals returned to a state of health. Control experiments with the urine of patients after the expulsion of the worms, produced no changes in the blood of the rabbits experimented upon.

ARSENICAL NEURITIS.[2]

Barrs showed before the Leeds and West Riding Medico-Chirurgical Society, a boy, aged twelve, who was almost totally disabled by palsy, following upon a severe attack of chorea, for which arsenic was given in increasing doses, the maximum dose being eighteen drops of the liquor arsenicalis, from November 12, 1892, to January 6, 1893. During the course of the chorea the knee-jerks were entirely absent, and, beyond a little sickness on two or three occasions, there were no symptoms of arsenical poisoning. The boy walked home from the hospital, a distance of a mile or more, on his discharge on December 6, 1892, when he was quite free from choreic movement, but the knee-jerk had not returned. He was readmitted a month later with serious loss of power in the arms, legs and trunk muscles, wasting of the affected limbs, and some anæsthesia, with tenderness of nerve trunks, dropped feet and hands, and loss of all tendon reflexes. Dr. Barrs thought the paralysis was due to arsenical neuritis and not to chorea.

PSEUDO-HYPERTROPHIC PARALYSIS.[3]

Pasteur showed before the Medical Society of London, a case of pseudo-hypertrophic paralysis in a youth, aged seventeen. The thighs were small, while the calves were characteristically enlarged. The wasted parts showed diminished electrical excitability. The case was remarkable in that it appeared to be an instance of the disease having become arrested in an early stage. The lad was intelligent, but his father was an epileptic.

CROUPOUS PNEUMONIA IN CHILDREN.[4]

The paper was read before the Medical Society of London, and based on 226 cases. Most cases occur during March, May and July; the fewest in January, August and December. They occur, as a rule, independent of antecedent disease, and in the great majority the onset could not be attributed to any definite cause. Fifty of the cases occurred under the age of five years, one hundred and twenty between five and ten, and fifty between ten and fourteen. The disease was most frequent at the ages of five and nine respectively.

Connecting his table with a further series of over seven hundred cases compiled by others, he found that the frequency of the affection gradually rose from the fifth to the twentieth year. Its onset was usually sudden and its chief symptoms of invasion were vomiting, cough and pain, while rigors and convulsions were very infrequent, and hæmoptysis extremely rare. An arrangement of symptoms into groups showed that the nervous system was the one most variously affected. The average daily temperature before crisis was 103° and 104° F., and in about one-seventh of the cases, the fever was of a hectic type, though in only three was such associated with pus in the pleural cavity. The sixth was the commonest day of crisis, it being very frequent on the seventh and eighth days. In basic pneumonia it was rather later than in apical. A dull tympanitic note was often present before any differentiation was detected in the character of the breath sounds. In one hundred and forty-six cases, the base of the lung was attacked in sixty-nine, the apex in forty-five; in the remainder the seat of the disease was in other parts. The most rapid respiration noted was 68. Typical rusty expectoration was present in seven cases, the youngest being six years old. Pleurisy coexisted in sixteen cases, pus being found in three. Gangrene of the lung occurred once. A soft systolic murmur was detected as arising during the course of the disease in six cases. Pericarditis was noted in one case, the patient having had rheumatic

[1] E. Arslan: Mal. de l'Enf., Paris, 1892, x, 555.
[2] Barrs: British Medical Journal, 1893, i, 239.
[3] Pasteur: British Medical Journal, 1893, i, 236.
[4] Francis Hawkins (London): British Medical Journal, 1893, i, 698.

fever previously. Albuminuria was discovered during the disease in seven cases, and herpes in thirty-six, being in one case on the wrist as well as the angle of the mouth. Delirium was more frequent during the course of the disease than at the onset, and more in apical than basic cases. In the treatment, ice should be used with great caution when the pneumonia was on the left side, as the heart might become slowed and dangerous symptoms arise. As to alcohol, discretion was required to select the cases in which it was needed.

CHOREA IN A BOY: NECROPSY.[5]

The patient, a boy aged nine years, died December 29th, two months after the onset of the chorea, which was bilateral. A post-mortem examination was made in the afternoon. Rigor mortis had commenced in the lower extremities; no subcutaneous nodules were found. The pericardium was rough and thickened, covered with fibrinous exudation, and contained a considerable quantity of turbid effusion. The heart was slightly hypertrophied, the muscle paler than normal, but not friable. There were some very small vegetations on two of the aortic valves, and less on the mitral; the right side was normal. There were evidences of broncho-pneumonia in both lungs; the brain and abdominal viscera were normal. The rarity of fatal cases makes this one of interest, although there is no fresh light thrown on the pathology of chorea.

SCLEREMA NEONATORUM.[6]

The infant was first seen when four days old. On the second day after its birth, the peculiar condition of the skin drew the attention of a neighbor. The following appearances presented themselves when first seen: The legs, feet, arms, hands, back of shoulders and upper part of chest had the feeling of india-rubber stretched over a frame. The color of the skin varied from a deep purple to a light pink. It cried feebly, and every few seconds stretched its body to its full extent, as if struggling for breath, or as if it felt stiff all over. The pulse was 120 beats per minute, and the temperature 97°. There were no pulmonic nor cardiac abnormal sounds. The bowels had moved shortly after birth, but not again. The constipation was most obstinate. Hot-water baths and friction of the whole surface of the body was given. It was enveloped in cotton and wool, and a temperature of about 75° was maintained in the room. Several punctures in the skin were made with a view of releasing any fluid that might be there, and thus relieving the tension, but only a very little blood and yellow fluid escaped. On the sixth day the temperature fell to 87°, and the infant died that night.

ETIOLOGY OF "RÖTHELN" (GERMAN MEASLES).[7]

Reference was made to the clinical symptoms generally known as rötheln, rubaoloa, or German measles. Attention was drawn to the extreme diversity of opinion held by various writers on the etiology of this affection, and it was pointed out that these opinions differed not only as to the essential nature, specific or otherwise, of the contagion, but as to what might be looked upon as the fundamental symptoms of the disease. The author endeavored to prove, from clinical as well as theoretical grounds, that an hypothesis was not untenable which assumed that the specific contagion of measles, being a living organism, as such would be liable to undergo variation, and would be subject to evolutional changes in adapting itself to varying conditions of "soil," and that some such hypothesis would afford a clue towards explaining the many affections of exanthematous character which departed more or less from the true measles type. Clinically, many conditions were known as rötheln. These conditions differing widely in both intensity and symptomatology, the writer asked: "Are such affections due to the same contagion, assuming different degrees of force or intensity, and profoundly modified by different states of 'soil' and environment; or are they due to contagia specifically distinct, the one from the other?" In support of the hypothesis, attention was directed to many points in the clinical history of measles and so-called rötheln. These points were severally discussed under the following heads: Personal experience of the various forms of exanthemata differing materially from ordinary measles. The variation of symptoms found with measles. Immunity: does it depend upon intensity? Will a mild attack of measles confer immunity in the same degree as does a severe one? Second attack of measles. The modification of measles by environment and by different "soil." The mutual want of protectiveness between rötheln and measles: may it possibly depend upon degrees of intensity? Is the general type of measles less severe than formerly? Special reasons why the contagion of measles is placed under conditions which will apparently favor variation.

THE PERSPIRATION IN CHILDREN IN PHYSIOLOGICAL AND PATHOLOGICAL CONDITIONS (IN SCARLATINA AND NEPHRITIS).[8]

The perspiration in healthy children is chiefly influenced by the relative moisture and the temperature of the surrounding air, in inverse proportion to the former and in direct proportion to the latter.

The ordinary variations in atmospheric pressure have no noteworthy influence. The perspiration in healthy children is inversely proportionate to the age and the body temperature. Introduction of food and drink increase the perspiration. In scarlatina, in all stages, the skin perspiration is diminished. The most notable retention of water is in scarlatina just before the appearance of albuminuria and with the appearance of uræmic symptoms.

Affection of the kidneys has for a cause this diminution of the skin perspiration.

Increase of the moisture and lowering of the temperature of the surrounding air favors the occurrence of scarlatinal nephritis. Therefore, it is to be recommended to keep scarlatinal patients in dry and warm air. Warm baths increase the skin perspiration notably, while inunctions of fat diminish it. Therefore warm baths are to be recommended as early as possible for scarlatinal patients, while inunctions of fats are to be avoided.

NINETY OBSERVATIONS ON ACUTE ARTICULAR RHEUMATISM IN CHILDHOOD.[9]

This affection is less common among children than among adults. The influence of the seasons does not appear very clearly, but heredity plays an important part in its production. Two peculiarities are noted

[5] Wm. Gosse: British Medical Journal, London, 1893, i, 231.
[6] J. Lindsay Porteous: New York Medical Journal, 1893, lvii, 442.
[7] Donald Hood: British Medical Journal, 1893, i., 582.
[8] B. Ssokolow: Arch. f. Kinderh., 1892, xiv, 257.
[9] La Province Medicale, Nos. 19, 20 and 21, May, 1892; Revue de Med. Chir. Obstet., June 22, 1892; Revue Mensuelle des Maladies de L'Enfance, June, 1893, page 278 (Ferret).

with regard to localization: first, as in adults, its rarity in the hip-joint; second, the frequency in children as compared with adults, of manifestations in the vertebral column. General phenomena are commonly but slightly marked. This is perhaps due to their relation to the number and intensity of joint-affections. The thermometric curve, as with adults, is irregular, and bears a relation to the exacerbations and extensions of the lesions. Sweating and sudamina are observed; also hæmorrhages, and particularly nasal hæmorrhages. The urine presents no differences from that of adults. Anæmia is an almost inevitable consequence of the rheumatism of children, as that of adults. It surpasses that of any other disease, with the possible exception of malaria, and it leads not only to pallor, but to souffles in the neighborhood of the pulmonary artery and of the vessels of the neck.

Much the most frequent complication is endocarditis. It is very difficult to determine the precise moment when endocarditis begins, for it can only be diagnosticated when the souffle appears. It persisted in the great majority of cases until they were able to be out; nevertheless, in eight cases it became materially lessened, and in five it disappeared. In one of these last, resolution took place very slowly, and it was not until eight months that the child had regained its former state. Therefore one should not be in a hurry to make the diagnosis of a permanent lesion. Pleurisy must be cited among other complications. When it occurred, it was much more often in the beginning than in the course of the disease. Six cases presented a more or less abundant eruption.

SPASMODIC MOVEMENTS OF THE HEAD IN INFANTS.[10]

Five cases of rotatory spasms of the head in infants are reported. The author proposes the name of "gyrospasm" for this condition, but does not suggest that its etiology is different from that of other spasmodic movements in infants, such as nodding. In one case only was there associated nystagmus, and in this case the movement was confined to one eye. In another case there was convergent strabismus. Gyrospasm was first noticed in these cases at the ages respectively of three months, four months, five months, seven months and eight months. "Taken together, therefore, the cases do not support Henoch's view that dentition is a cause." Pertersen suggests that in most of the cases cerebral concussion will be found to be the determining factor, and observes that in adults severe concussion may give rise to rapid though temporary nystagmus. The prognosis is, he believes, good; but a recovery may be hastened by the administration of bromide of potassium in doses of from one and one-half to three grains thrice daily.

A MATERNAL GUILLOTINE. — The Boston *Herald* relates an actual occurrence which is interesting as an example of the entire disassociation of meaning and intent from the words actually used by an irritated person. The writer when shopping overheard the following remark made by a woman who was buying some handkerchiefs in a crowded store. Her little girl was idly twirling a box by the string, while waiting by her mother's side. The string slipped off. The mother saw it and snapped out: "You bad, naughty girl; I'll chop your head off."

[10] Pertersen: Archives of Gynæcology, Obstetrics and Pediatrics, January, 1893, p. 45.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. OBSTETRICAL SECTION.

G. H. WASHBURN, M.D., SECRETARY.

REGULAR Meeting, Wednesday, March 22, 1893, DR. INGALLS in the chair.

DR. C. W. TOWNSEND read a paper on

PLACENTA PRÆVIA.[1]

DR. E. REYNOLDS: I think in dealing with placenta prævia, it is necessary to divide the subject, first, as to the degree of prævia, and then, as to the period of pregnancy at which hæmorrhage begins. Few things of serious import are more easily managed than marginal placenta prævia; its mortality, untreated, is not very high. Almost nothing is more creditable to an obstetrician than to get out of a central implantation with a living mother and child. Few emergencies are more dangerous. The question of treatment, apart from the greater urgency of the more complete prævias, rests mainly upon the period of pregnancy at which hæmorrhage occurs; more on the period at which the first hæmorrhage occurs than on the amount of hæmorrhage. When it occurs in the second third of pregnancy I think there can be but little question of judgment as to the treatment which should be employed. When hæmorrhage occurs at that period the dangers to the mother, which must necessarily ensue, to my mind, greatly outweigh any possible question of the survival of the child, which has not a very good chance if left to nature. I should unhesitatingly interfere in the second third of pregnancy so soon as I had the diagnosis established. When the hæmorrhage, however, first appears in the course of the seventh calendar month or even when six calendar months have been completed, I think the question of treatment is an extremely delicate and difficult one. The question is whether the case may be carried along until the child reaches the period of viability, with fair regard to the safety of the mother, and I think it must be determined largely by the circumstances of the patient rather than by any other consideration. If she is so placed that she can command the constant attendance of a physician, or if she is in a hospital where aid can be rendered at any moment, I think it is fair to carry her along so long as the hæmorrhages do not distinctly weaken her and raise her pulse. If she is in a situation in which she is distant from competent aid, is unable to command the time of any physician to such an extent that he will be safely within reach, I should prefer to sacrifice the fœtus; and I should do that as readily for moderate bleeding, with a well established diagnosis of placenta prævia at six months, or in the seventh month, as I should for moderately severe hæmorrhage. If it is a very bad hæmorrhage, of course we must interfere. A first hæmorrhage of one drop may be followed at any moment later by a hæmorrhage that will be promptly fatal within a few minutes. Of course with the circumstances of the patient must be included the degree of prævia; yet even a marginal placenta prævia in a patient remote from aid is a pretty dangerous thing to let alone. I think that question of interference in the course of the seventh calendar month of pregnancy is the most difficult question in the whole subject of placenta prævia.

[1] See page 612 of the Journal.

I want to speak of one case illustrative of that point, that I have recently had. I have seen a number of cases of placenta prævia, and I have never seen but one patient who has died of placenta prævia and that was this one. Last autumn I saw in consultation a lady, six and a half months along, who had had moderate flowing which had been checked promptly by putting her to bed. It had occurred, I think, twice. She was in good condition. On vaginal examination I thought I could feel the edge of a marginal placenta prævia, or perhaps hardly more than a low implantation, through the cervix. The flowing was very slight at that time. She lived next door to the doctor. Within one hundred yards there were two other thoroughly competent physicians. Her circumstances were such that they were able to make an arrangement by which one of the three physicians should be within call all the time, and I advised him to carry the case on until the child was viable, stating my opinion that if the lady was kept in her rooms, and in bed whenever there was any question of flowing, the chances were that she would go along until the child was in a condition of good viability, or perhaps to term. She went on about a month without losing a drop of blood. Then the physician was called to find her exsanguinated, arriving within a few minutes of the first appearance of bleeding. He immediately etherized, dilated, turned, and delivered a living child, had but slight postpartum hæmorrhage, and yet lost the patient within an hour. I still think at that period of pregnancy and under those circumstances, that is, where the patient could command constant care, it is only fair, in view of the value of the life of the child, to carry the case along to viability, or until something in the way of severe hæmorrhage urges immediate interference. I report that case as illustrating the fact that after a very slight hæmorrhage we are taking a risk for the mother for the sake of a child which will shortly be viable, and that, however slight the first hæmorrhage may have been, however high the implantation of the placenta, this risk is never absent. When the first hæmorrhage occurs after the child is viable, there is less question about the treatment. In such cases outside of a hospital, or without the most constant attendance of a competent physician, I should interfere, in the belief that here the undoubted risk to the life of the mother more than counterbalanced the risk to the child.

As to treatment when interference has been resolved upon, I think there is but rarely any choice, and that internal podalic version is generally the better treatment. In marginal cases of partial prævia, I am inclined from a moderate experience in the expedient, to prefer the performance of version through the undilated os by the use of two fingers, rather than dilatation and the whole hand, a tamponade of the lower uterine segment by the half breech and waiting. It is much more rapid and I think is, on the whole, a less severe operation to the mother. I have not lost a child in that way. I think that two things are to be spoken of further in connection with the treatment of a case that must be interfered with at once. The first is that the very moment the diagnosis is made, I think that the hand should be passed into the vagina, one finger passed into the os to nearly its whole length and the placenta detached from the margins of the os for a distance of two or three inches. In my experience that expedient is invariably followed by a considerable increase in the dilation of the os and by prompt, though temporary, arrest of flowing. It gives the patient a chance to recover a little from such loss of blood as may have occurred, and gives the physician time to make his preparations. Hæmorrhage may recur at any moment and the fact that it has stopped after the detachment of the placenta, should not be allowed to induce the physician to absent himself a moment from the bedside. Further, the great liability of postpartum hæmorrhage after placenta prævia and the great danger that follows slight additional losses of blood after moderate hæmorrhage has once occurred, should, I think, make it incumbent on every one who has to deal with a case of placenta prævia to use the most careful manual guarding of the fundus from the moment he begins his delivery, to have the fundus followed down the moment the extraction of the child begins, and have it guarded by the hand during every individual second that follows the delivery; without the omission of a single second, until he is convinced that the retraction of the uterus is sufficient to guard the patient against any likelihood of postpartum hæmorrhage. The hand should be held against the fundus and at any sign of softening of the uterus, rapid, light friction should be applied to the fundus through the abdominal wall. It is my experience in labor in general, that anticipation of postpartum hæmorrhage, does more to prevent loss of blood by postpartum hæmorrhage, than all the means of controlling postpartum hæmorrhage that are within the control of the profession, and I think it is very important in placenta prævia to remember the likelihood and great danger of *postpartum hæmorrhage.*

DR. KINGMAN reported

TWO CASES OF ACQUIRED COMPLETE ATRESIA OF THE VAGINA.[2]

DR. E. W. CUSHING sent the following history of a case, which may be of interest in connection with Dr. Kingman's paper:

Mrs. M., of Canton, Mass., about twenty-five years of age, entered the Charity Club Hospital in the following condition: There was a complete rupture of the perineum extending some two inches into the rectum; there was a large opening in the base of the bladder, and the vagina was apparently perfectly obliterated, as not enough space remained to pass a probe up towards the uterus. This condition was the result of labor some three months previously; the delivery had been effected with forceps with great difficulty. I first repaired the vesico-vaginal fistula and the perineum at one operation; the perineum united well, but in about ten days the bladder began to leak again. At a second operation I separated with great difficulty the anterior and posterior walls of the vagina, as far as seemed safe and possible. To do this required real dissection; if the woman had not previously had a child, I would not have believed that she had ever had a normal vagina. At length, however, I reached the cervix with an opening sufficient to admit the finger, and packed with iodoform gauze the channel thus formed; I then proceeded to close the vesico-vaginal fistula, which was much smaller than at the first operation. This time it united. The packing of gauze was renewed at intervals for some three weeks, when I again gave the patient ether, and working laterally with the finger and scissors, I was able to enlarge the

[2] See page 615 of the Journal.

vagina, and also to separate the adhesions in the anterior and posterior vaginal fornices, so that the cervix was liberated. The passage thus re-established was packed at due intervals with iodoform gauze, and the patient finally left the hospital in a good condition. She soon became pregnant again, and by my advice went to the Boston Lying-in Hospital, to apply for admission for an operation for premature delivery, owing to the contracted pelvis. I learned afterwards, indirectly, that although such an operation was recommended to her by the physicians of that institution, she did not appear in due season, but was finally delivered there at term.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. T. BOWEN, M.D., SECRETARY.

REGULAR Meeting, Monday, October 23, 1893, the President, DR. C. F. FOLSOM, in the chair.

Dr. F. I. Knight read a paper on

SENDING PATIENTS AWAY FROM HOME.[1]

DR. E. N. WHITTIER: Mr. President, it is my privilege, through your courtesy, to express the high appreciation entertained by the Society for this timely presentation of a most important subject, at the hands of our distinguished associate, for to him more than to any one else in this country is due the large advance made in the treatment of tubercular diseases by the method known as "high altitudes."

I have been pledged from my earliest recollection to the expression of a favorable opinion, as to the results of a judicious selection of cases to be "sent away from home," particularly when such selection is combined with an accurate knowledge of the various health resorts: for as far back as the time when cod's livers were fat and frequent in the pure water of Casco Bay, I remember our hired-man in the garden back of the barn, trying out cod-oil, then in its therapeutic infancy and but little known to commerce; that on three separate occasions the family gathered at the bedside to receive the last words of one blanched with hæmorrhages. I shall never forget the sublime courage imparted by the promise of the physician, that though the distance was long, and the months of separation would be wearisome, a return to fair health could be assured by going away from home; the voyage to South Carolina was most distressing, the journey across the State most tedious, and a planter's house in Aiken the only place then affording sheltering care. A second winter completed the good work begun in the first, and the patient returned home free from all signs of pulmonary disease, to live many and invaluable years, yielding at the last to an acute disease bearing no relation to that, for which in early years so great anxiety had been experienced and for whose cure a measure then rarely appealed to, was resorted to and not in vain. It is for this reason I advocate careful study of the rules set forth by Dr. Knight, and would ask your cordial commendation of his insistence of the principle now well established, that by a wise selection of patients and places tubercular processes can be arrested and cured. It is of frequent mention that about 30% of the residents of Colorado are of tuberculous history. Dr. Solly states, however, that in his experience of seventeen years in that State he has known of but four cases of phthisis contracted there, a most remarkable comparison. The conclusions now reached are based upon the tabulation of results in nearly five thousand cases, at the hands of sixteen or seventeen of the most competent observers, here and abroad, and represent the most careful painstaking observations of cases, during the earlier stages of the disease, in advanced stages, through all the time they were under treatment, and for considerable time afterwards.

These results show the marked advantages, claimed by Dr. Knight in his papers on the high altitude method of treatment, as well as the fact that the sanitariums and closed resorts do not offer in any degree the inducement found in the open-air resorts. For the percentage of cases in closed resorts and sanitariums, is only ten, as compared with thirty-two per cent. in open-air resorts, for phthisis in all stages; while for the first stage of this disease the closed resorts give only twenty per cent. against sixty-two per cent. for the open-air method: the conclusions are irresistible. We can, therefore, maintain in practice, that there is abundant promise of good result, and of benefit commensurate to the large effort and sacrifice frequently and freely made.

Dr. Knight makes a strong point when he discusses the financial side of the question, the large expense incident to the process of sending patients away from home, and the necessity of learning before advising change of climate, whether or not it would be reasonable to expect the patient to follow such advice if given. To hold out to a patient the promise of cure by going away from home, when it is impossible to obtain the means to do it, is a refinement of thoughtless cruelty too often inflicted by consultants, neglecting to secure information, at hand, to guide them. I know that physicians sending their patients for advice and opinion, are sometimes made to feel not only that the consultant is too careless, but that he shirks the responsibility in all forms of any process which is in any sense a departure from an inflexible inelastic rule of sending away from home all whose physical condition offers hope of remedy.

DR. S. W. LANGMAID: I regret very much that I did not hear the whole of Dr. Knight's paper, but I have no doubt that I am familiar with what he has said in it from a knowledge of his previous papers, to which I heartily subscribe. I do not know that I can say anything in addition to what he has said. The only thought in my mind is in regard to the influence of altitude. Taking it in a large way, it has seemed to me that altitude has much to do with cure. One may obtain palliation without altitude; but, so far as my experience goes, cure has been accomplished ordinarily in those cases in which patients have been sent to some considerable altitude, like Colorado. This is generally accepted, I believe. Here, then, is an important factor in the selection of residence. Where cure can be hoped for, a region of high altitude may be selected even if all the conditions of the place may not be in accordance with the patient's comfort. Other considerations enter into the selection of a residence for those who are manifestly beyond the hope of cure; considerations of comfort, of distance from home and friends, etc. By formulating his views, in this and others papers, Dr. Knight has greatly assisted those who have the responsibility or choosing residences for their patients.

DR. F. B. GREENOUGH: I would like to endorse

[1] See page 609 of the Journal.

two practical points; one is the absurdity of sending patients in whom the disease is too far advanced to health resorts to die. In the old days people with tuberculosis were sent South and died like sheep. The other point is the absolute absurdity of sending a patient to Colorado or to any health resort who cannot buy bread and butter. It would be as absurd as to advise dispensary patients to buy woodcock and champagne.

DR. G. W. GAY: I think this is one of the most important subjects that could be brought up at this time. It was very forcibly brought home to my mind last winter, which I was obliged to spend on the Pacific coast. There one is brought in contact with this subject all the time. I think the most pitiable objects I ever saw were those far gone in consumption sitting on hotel piazzas trying to keep warm, and to look on the bright side of life. Many of these poor creatures would have been infinitely better off at home under any circumstances; therefore I think this subject cannot be too widely agitated, in order that properly selected cases may be sent away to these various health resorts. That infinite good is done in many cases everybody must bear witness. I had this forcibly brought to my notice last fall in the case of a young lady friend, who was examined by Dr. Knight and sent to Colorado. She was in a deplorable condition, with high temperature, quick pulse, constant cough and rapidly emaciating. It seemed as though the young lady could not live six months here. At Dr. Knight's suggestion she went to Colorado Springs, and was placed under the skilful care of Dr. Hart. It was with the greatest difficulty that she reached there. After arriving at her destination she had to stay in bed about three weeks before she could breathe with comfort. She remained during the winter and spring and in the summer went to some resort near by. The result was that she got perfectly well so far as any physical or objective sign could be detected. Rather against our advice, she has come back here for the winter. I think this is the most marked case of benefit from change of climate I have ever seen.

There is another practical point, which people should understand who go West, and that is, as to the kind of weather they are to experience there. They are apt to think that because the sun shines the year round it must be warm, and consequently they take thin clothing. They had better put their thin clothing at the bottom of their trunks, and have all their warm clothing on top, because the climate of the Pacific is peculiar. While in the sunshine one is comfortable without an overcoat, but if one goes into the shade he needs an overcoat. At San Diego I was fortunate enough to have a room on the sunny side of the house, and many an afternoon I sat writing with my window open and without a coat, while across the hall my neighbors had to have a fire. In the shade the climate is cold, in the sun warm. As to having hot weather, they may have it in the summer; they certainly do not in the winter or spring. Personally I never had so many colds, as while on the Pacific coast. I think that was because I was ignorant of the climate, and did not know how to dress.

The mental characteristics of the patient are important. Some patients are contented anywhere, others nowhere. The latter, I should say, had better stay at home. If they go West, whatever their surroundings, they will be homesick and unhappy, and derive little benefit from the change, whereas, those who look upon the bright side of things, would stand a much better chance under the same circumstances than the first class. Those are points that will be brought out more and more by such papers as Dr. Knight's. For my part I am very much obliged to him for presenting it to the Society.

DR. KNIGHT: I am very much obliged to the gentlemen for endorsing my remarks. I wish to say one word in regard to the patient Dr. Gay has mentioned. I do not remember the exact condition of the young lady, but I should not like to have the Society think that was exactly a picture of the case I would usually plunge into a high altitude. I do not remember what determined me to feel that that was the place for her, but ordinarily a very high temperature and very rapid pulse and rapid respiration would make me hesitate to send most patients at once to a very high altitude, but there was undoubtedly something about the case which made me feel that that would be the best place for her, and so it proved.

DR. EDWIN E. JACK reported

A CASE OF RECURRENT PARALYSIS OF THE OCULO-MOTOR NERVE.[2]

DR. G. L. WALTON: I do not remember having seen one of these cases. It has seemed to me they must be rare in this country, especially since a conversation with an oculist who has had a large experience in one of the ophthalmological clinics, and who said he did not remember having seen a case. On general principles and judging from the literature there would seem to me to be two classes of these cases. I can hardly believe that all those collected come under the same head. A patient, for example, who becomes comatose and dies, revealing on autopsy an exudation at the base of the brain involving the nerve, can hardly be classed along with the cases (rather more typical), which begin in infancy or early life and recur at more or less varying intervals until middle or advanced life with no effect on the general system, no other paralysis or any important symptoms between the attacks. It seems to me that in this class of cases we have something analogous to migraines and also analogous to the transient monoplegias, hemiplegias which we call hysteria, the typical hysteria of Charcot, in which there is a real paralysis of one or more extremities, which is not under the patient's control but of which we do not understand the pathology, analogous again perhaps to some of the transient paralyses occurring in organic disease where after death we do not find anything to account for the symptoms. I remember a patient with general paralysis who died in an attack of hemiplegia, where the post-mortem examination showed no definite localized lesion in the brain, to gross appearances at all events, to cause any such symptom. I understood Dr. Edes to suggest in a paper read last year before the Boston Medico-Psychological Society that there was in these cases perhaps a localized œdema, and it seems to me that is not an unreasonable theory. We see in hysteria in certain parts of the body œdema, swelling of the ankle or wrist, for example, which lasts a certain length of time and disappears. I have seen the leg so swollen that the skin would crack and the leg become superficially gangrenous, in a case of hysterical hemianæsthesia and hemiplegia of that side; typical hysterical

[2] See page 617 of the Journal.

symptoms persisted a number of years in this case and the patient was sent to the Home for Incurables, where she recovered completely. Now it would hardly do to call that functional, for there was a definite lesion, and yet it disappeared. I have myself advocated rather strongly in these cases of hysteria where there are definite paralyses, going back to Eulenberg's theory of disturbance of the vaso-motor system in migraine, although a good deal of contumely has been cast on vaso-motor theories. I cannot imagine anything else than a vaso-motor disturbance, however, which will give rise to paralyses that will suddenly disappear and suddenly recur or suddenly shift from side to side of the body. I cannot imagine a dynamic change working in this way. I can imagine also that there is localized œdema of the brain in some of the more lasting cases. Of course, it is all theory where nothing is found post-mortem, and one person's judgment is perhaps as good as another's in ante-mortem pathology. Probably some cases reported are the results of organic disease and perhaps have been confounded with these recurrent paralyses of functional, perhaps reflex character.

Dr. S. G. Webber: These cases are interesting, especially when grouped with other cases of recurrent or periodical paralyses. Speaking first of such cases as have been reported, I think I should agree with what Dr. Walton has said about the vaso-motor condition, that many of them are reflex in their origin, but it is not always easy to find the seat of the trouble which causes the reflex action. I do not remember any reported case where the condition of the eye was examined to discover whether there was any disturbance of vision, such as is found in so many cases of sick headache, which produces the sick headache, and it seems to me it would be worth while to make such examinations when the opportunity offers, to examine the eyes carefully to see if there is any refractive disturbance. I do not know why refractive disturbance should not cause motor as well as sensory trouble, why it should not cause paralysis of the motor oculi nerve as well as sick headache or, as in some cases, spasm.

The case of Thomsen, which came to autopsy, is interesting and instructive. Thomsen, I believe, reasoned that it could not be a disturbance of the peripheral nerve, that it must be a disturbance of the nucleus of the nerve. Some time afterwards the patient died and there was found a growth around the nerve. The fibres of the nerve were pressed apart by the abnormal growth. The nerve fibres on both sides the tumor were healthy and the paralysis was evidently due to congestion temporarily increasing the pressure. It is hardly possible that every case can be explained in that way. In fact this case by its rarity would be a proof that the lesion in periodic paralysis is generally not peripheral, not organic. The very singularity of this case would make it more likely that in other cases the paralysis is due to local congestions of the nerve centres. Most peripheral disturbances would destroy the fibres of the nerve, and there would be a more decided and absolute loss of power which would be persistent. The very fact of the periodicity and of the complete recovery in the intervals would exclude the peripheral origin. Any gross lesion near the nucleus could hardly be accepted as a cause, because if large enough to produce so much disturbance it would be likely to produce still more disturbance, and even a small growth near the nucleus would affect other functions if it did not affect the nucleus itself, and if the nucleus was affected by other than vascular changes we should have permanent symptoms which in many cases we have not. To be sure one class of these cases shows symptoms connected with the limbs and various other disturbances which must be due to gross lesions, but I am speaking of that class of cases in which there is simply temporary motor oculi paralysis without any other symptoms. There are probably two classes of periodic paralysis, one with gross lesions, one without. In the former there are other nerves affected and the disturbance is more permanent. I should rather favor the reflex vascular disturbance as the probable cause in cases truly periodic. There is one peculiarity in many of these cases which gives a little hesitation in fully accepting this and that is that after long continuance of the paralysis some of the symptoms become permanent, certain muscles, perhaps the superior rectus or the levator of the eyelids or muscles of accommodation remain permanently affected, showing that a permanent change has taken place, but this may be the result of repeated vascular changes.

I said that these cases were interesting with reference to other similar cases. I had a case of periodical aphasia once under my care. At first the patient was completely himself between the aphasic attacks. Later the attacks became rather more severe, lasted longer, and the patient between the attacks would miss words or use wrong words in talking, no more than some persons in apparent health would do; but as the attacks continued in frequency they became still more severe, and at length he was not able to talk properly between the attacks and not able to attend to business. He was put in an insane asylum. He died; and at the autopsy there was found more or less meningeal adhesion and some softening of the cortex, especially in the neighborhood of the island of Reil. Some of the cells of the brain had undergone fatty degeneration, and the small arteries were calcareous with degeneration of the cells, so that on cutting the brain the arteries were pressed down by the knife, and as the section was made the arteries projected as small twigs above the cut section and there was a little grittiness to them. The aphasic attacks were at first probably purely vascular. Of course later there was inflammatory change of the membranes and cortex as you find in general paralysis.

A peculiar case which I had and which was more of the nature of spasm was that of a man, seven members of whose family were similarly affected. The affection consisted of attacks of more or less difficulty in walking, chiefly stiffness, but when these attacks came on at night he would wake up in the morning unable to move. His whole body would be helpless. The attack would last until about noon when he would recover the power of motion. That was perhaps stiffness rather the opposite of paralysis, and it is possible the man may not have known the difference between contraction or rigidity and paralysis.

Five cases of general periodic paralysis have been reported by Consot; several of the five patients were of the same family. There was paralysis of all the limbs, the attacks recurring every day in some of the patients, in others at varying intervals from a week to ten or fourteen days. The attack lasted from five or six to ten or twelve hours, some longer. There was complete loss of power of motion and complete recov-

ery. The attacks began in comparatively early life; in some of the patients they continued till quite late in life. One patient had no more attacks after her first pregnancy. Westphal has reported a similar case of periodical paralysis in which there was complete loss of motor power in all the limbs with loss of electrical reaction which lasted a certain length of time and recurred, and in which there was complete recovery between the attacks.

Now these are very peculiar and singular cases and they seem to have an analogy to those that were reported as well as the cases of hysterical paralysis which Dr. Walton has referred to, and we cannot think of these cases of total paralysis as having any other source than the brain, that from some cause either by reflex influence, or by some other influence upon the circulation, there has been a vaso-motor disturbance which has destroyed the power of the cells to respond to the will. I suppose it might be called an inhibition of the motor power. I should be rather inclined to say it was a vaso-motor disturbance. It would be valuable and interesting if we could have more autopsies, but unfortunately we have not, and we are in the dark and have to grope about reasoning from analogy rather than from facts.

DR. P. C. KNAPP: I have been so fortunate as to see two cases in which I have made this diagnosis. The first case was referred to me by Dr. Wadsworth and is the one which he reported to this Society some six or seven years ago. The other case I hope to publish later. I would take issue with both Dr. Walton and Dr. Webber in regard to the pathology of these cases. In the first place, I question whether we can regard them as being analogous or akin to migraine, although Charcot has given the cases the name ophthalmoplegic migraine. I would agree with Mauthner in his conclusions that the difficulty is more probably with the oculomotor nerve after it leaves the nucleus. The fact that the condition is always unilateral, always recurring on the side in which it began in later attacks, speaks somewhat against the involvement of the nuclei. Furthermore, in the majority of cases the internal muscles of the eye are affected as well as the external, while in the nuclear palsies the accommodation and the movements of the iris are not usually affected. I must confess myself also sceptical in this as in many other affections in regard to the vaso-motor theory. We must not forget that in this affection there are only twenty-eight cases on record with three autopsies, but in every one of those cases there were distinct lesions found in the third nerve, either a tumor or inflammatory exudation, and in many of the other cases the clinical symptoms were such as to indicate some lesion in the neighborhood of the nerve. It seems to me, therefore, that we must confine ourselves to the limits of absolute knowledge without going into theoretical pathology, and absolute knowledge points as far as we have it to distinct changes within the nerve itself. In regard to the analogy and kinship to hysteria, that seems to me most remote, I do not know of a case of hysteria with the history of paralysis of the third nerve involving the external and internal muscles of the eye.

DR. JACK: I do not see how œdema can explain the persistence of the paralysis. Dr. Wadsworth's case, which seems to be so clearly connected with the otitis, cannot be explained in that way. One of the typical cases was in a tabes patient and it was considered that there was a connection between the two troubles. If this is true the paralysis in that case was certainly nonfunctional. It seems to me that the theories most distinctly in favor of the migrainous character of the affection are the accompanying disturbances.

Möbius thought that if there were a basal lesion the pain would not cease with the appearance of the paralysis. He therefore placed the origin of the pain near the nucleus. I would add to the reason which Dr. Knapp gave against the nuclear origin of the trouble, the non-involvement of the fourth nucleus and the completeness of the ptosis in most instances, the ptosis in known nuclear ophthalmoplegia being usually slight.

Cases analogous to these involving other nerves, the facial especially, have been reported. In one case there was in the different attacks an alternate paralysis of the facial and abducens.

Recent Literature.

Chirurgie des Voies Urinaires: Etudes Cliniques. Par le DR. E. LOURNEAU. Bordeaux: Feret et Fils. 1894.

Under the above title the author presents a varied assortment of clinical observations, together with his comments upon a number of cases of diseases of the genito-urinary organs. Many of these cases are sufficiently interesting in themselves; but they offer too little that is new or important to be considered valuable contributions to the subjects which they illustrate.

The observation which seems to us the most instructive is No. VII, which contains the reports of seven cases of chronic hydrocele, the cause of which in each case the author considers to have been urethral stricture — the latter being responsible for chronic inflammatory areas in the deep urethra and in the tail of the epididymis. One of these cases is very striking from the fact that hydrocele developed in the course of the formation of a stricture, disappeared spontaneously after an internal urethrotomy, recurred later as double hydrocele synchronously with the recontraction of the stricture, and again underwent spontaneous cure when the stricture was dilated.

The work suffers much from the diffuseness of the author's style in many places. A conspicuous example of this fault is to be seen in Observation III, which relates a case of the impaction of a bit of a pipe-stem in the urethra and bladder of a young girl. Six pages are occupied by the report of this case. All that is at all essential is contained in the space of a page and a half, the remaining pages being filled with such details as the visits of the mother and daughter to the doctor's office, the anger of the girl's father at the mysterious loss of his pipe, etc. These matters are, it is true, dealt with in a manner sufficiently entertaining, but scarcely appropriate to the serious consideration of the case *per se*.

The introduction of somewhat elaborate reports of such cases as those of a peri-urethral abscess occurring in the course of an acute gonorrhœa, or of a certain abnormality of the meatus urinarius, seems rather trivial.

The book would gain much if it were reduced to one-half its compass. We must confess that we do not find in it a *raison d'être* for so imposing a volume; nor do we think it will appeal strongly to the profession at large.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, DECEMBER 21, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

THE PATHOGENY OF BRONCHITIS.

MOSNY, in a useful treatise on broncho-pneumonia,[1] recently published in the Charcot-Debove series, emphasizes equally with Netter, the microbian origin of this disease, and ascribes its pathogeny to four species of microbes:

(1) The diplococcus pneumoniæ, or Talamon-Frænkel lanceolated pneumococcus.

(2) A streptococcus which Netter and others identify with the streptococcus of erysipelas and of suppuration.

(3) The staphylococcus aureus and albus.

(4) The encapsulated pneumo-bacillus of Friedlander.

This writer insists that these are all common microorganisms normally existing in the upper air passages (bucco-pharyngeal cavity and nasal fossæ) of most people in health, and ready under the influence of predisposing causes to become virulent and morbigenous. We live, then, he says, in perpetual menace of pulmonary infections, of which our organism harbors within itself the cause; it is this category of infections which Bouchard has felicitously designated under the name *auto-infections*. Happily, the organism possesses ordinarily means of protection, which suffice to prevent the pullulation of the pathogenic agents and even to produce their destruction.

Claisse in an elaborate article in the *Semaine Médicale* (1893, p. 297) takes the stand that the microbian nature of the bronchitis is now demonstrated. Certain causes heretofore regarded as efficient, are to-day ranked among the predisposing causes; cold, for instance, only prepares the way for the microbian invasion. He takes, as the type of bronchial affections, those which occur in children, without alveolar lesion, and apart from any general disease. This type is seen in certain rapid forms of suffocative catarrh, so often fatal in infants.

The presence of the microbe in the bronchi manifests itself by both local and general effects.

[1] Broncho-Pneumonie, par E. Mosny, Paris, 1892.

The local effects have to do with the secretory reaction of the bronchial tree, which in certain conditions may bring about obliteration of the tubes, thus interfering with respiration. Bronchial obstruction is always an element of great danger, and doubtless gives to these respiratory infections of early childhood their principal gravity. But there is another pathogenic factor which also has its importance, as it has much to do with the general symptoms, namely, the toxicity of the bronchial secretions.

Beau, in a memoir published fifty years ago,[2] speaking of the bronchial catarrh of infants, observes that the products of bronchial secretion when swallowed, are the source of true poisoning accidents. Hayem, many years later in writing on bronchitis,[3] explains certain symptoms as due "to alterations of the blood by poisons secreted." The systemic intoxication thereby caused accounts for the febrile temperature, and in some measure for the dyspnœa.

Claisse, who has made a particular study of these bronchial auto-infections, divides the respiratory tract into (1) regions normally aseptic, (2) regions normally septic. The first are constituted by the bronchial network, the second by the mouth and naso-pharynx. The communication between the two systems is a wide one, hence the transition is not abrupt. There is an anatomical zone of transition constituted by the larynx, trachea and larger bronchi where there is a progressive decrease in septicity. Thus, there is a marked difference in septicity between the upper bronchi and the pharynx, and the finer bronchi normally contain no microbes. These passages, however, have a constant communication with the septic region, and hence the facility with which infective inoculations can be made. Claisse contrasts this anatomical condition with that of the liver and gall-bladder and the urinary bladder, aseptic viscera which are better protected from microbes, both by their situation and by sphincters. The greater frequency of bronchial infections over infections of the liver and urinary bladder is what we might expect from these anatomical differences. The bronchi are armed against infection by their system of vibratile ciliated epithelia expelling the figured elements, and by the microbicide quality of the adhesive secretion of their caliciform cells and glands. The lymphoid stratum of the mucosa constitutes a leucocytic infiltration resembling that of the pharynx, having an especial importance, when the epithelium is destroyed, through the phagocytic function of its lymph cells. The lymphatic glands also play an important rôle in the defence of the organism. The upper air-passages are endowed with reflex sensibility, enabling them to throw off by expectoration divers noxious substances. The medium-sized bronchi, less exposed to infection, are less efficaciously armed, though possessing a muscular coat which helps expel mucus and foreign bodies. The ciliated epithelium disappears at the extremity of the bronchial tree. The secretory apparatus, the cartilaginous rings and the muscular

[2] Beau: Journal de Médecine, 1843, p. 146.
[3] Hayem: Thèse de Paris, 1869.

fibres are here lacking; reflex sensibility has disappeared; on the other hand, absorption is more active, being favored by the thinness of the epithelial layer. Hence, it is apparent that the finest bronchi are poorly defended against the penetration and stagnation of septic products, and are especially adapted for the absorption of toxines.

We have not space for the clinical picture which Claisse has drawn of capillary bronchitis, and the arguments by which he explains the general symptoms in accordance with his theory of systemic intoxication. The well-known syndrome certainly markedly resembles that of some forms of uræmic or ptomaine poisoning rather than that of simple pulmonary obstruction; note the myosis, the frequent typhoid prostration from the onset, the multiform cutaneous (purpuric or erythematous) manifestations, the extreme oliguria, and the fact that the fulminant bronchial infection is not always accompanied by the boisterous symptomatic cortége of suffocative catarrh. There may even be absence of cough from the first. The autopsy shows the bronchi engorged, in places eroded of their epithelium, stuffed with an exudation containing modified epithelium, leucocytes and the microbian agents of infection. The liver is often found fattily degenerated, and the spleen fatty.

Claisse affirms that the hyper-acute bronchial infections of infants at the *Hospice des Enfants Assistés* are habitually streptococcus infections. This microbe attains in the disease-focus a preternatural virulence, and when inoculated in guinea-pigs produces a fatal septicæmia, without reaction at point of inoculation.

What are the causes which favor the microbian invasion? "We may," says Claisse, "suppose the bronchial tree to be injured in its resistance, epithelial or lymphatic, by cold or some other agency which modifies the mucosa. There is no longer a sufficient defence against the infection. The microbes obtain a lodgement and multiply; triumph over the divers means of resistance already mentioned; and spread or are carried in the air to the fine bronchi where they meet with little opposition; there they elaborate their poisons without stint."

The bronchial lesion is then the necessary starting point of the infection.

Claisse has artifically provoked bronchitis in animals by different methods. In a first series he produced aseptic lesions by intratracheal injections of dilute sulphuric acid or ammonia. The animals (healthy hares) were killed in twenty-four hours, and reparation of their lesions was nearly complete. In a second series he injected into the trachea of hares a few drops of cultures of the streptococcus and staphylococcus. At the end of twenty-four hours the animals were killed, and no lesion was discoverable. A third series was subjected first to the action of the aseptic caustic, then, at the end of an hour, to the injection of the microbian culture; at the end of twenty-four hours the animals were killed and were found to be the victims of an intense bronchitis.

These experiments were designed to imitate conditions occurring in nature where lesions of an irritative or erosive nature (physico-chemical traumatisms) are the antecedents of the bronchitis. It is known that the inhalation of gases, irritant by their high or low temperature or chemical properties, also dust, perhaps of some kinds of pollen, the elimination through the bronchi of certain toxic substances as alcohol and iodine, etc., may usher in attacks of bronchitis. Doubtless many microbes (as those of measles and whooping-cough) are able by their natural virulence, in many subjects, to immediately overcome the resistance of the bronchi.

Claisse has made some interesting experiments to elucidate the toxicology of bronchitis. We can only sum up the results which, together with considerations before advanced, have led this writer to the conclusion that the symptomatology of the bronchial infections is dependent largely on systemic poisoning by the toxines elaborated by the specific microbes.

Portions of the infected bronchial tract are broken up in sterilized water and filtered through porcelain. The filtrate when injected in hares produces very marked toxic effects, among which are hyperthermia and dyspnœa.

Streptococci taken from the same bronchial exudate are sown in bouillon; this bouillon is filtered through porcelain and injected in hares, producing precisely similar constitutional effects.

Benign forms, when the general phenomena are slight and the symptoms of local reaction conspicuous, manifest the preponderant resistance of the organism and the triviality of the lesions; while the grave forms betray the insufficiency of the organism in the struggle and the profundity of the intoxication.

MEDICAL NOTES.

CHOLERA. — The cholera still prevails to a considerable extent in Russia, Odessa particularly being infected. Hungary has been officially declared free from the disease.

INFLUENZA. — Newspaper reports from the Continent state that the influenza is widespread and general, though of a mild character. There are said to be 10,000 cases of the disease in the Province of Rhine Hesse. Throughout the United States there continues to be a spread of the disease, many cases being reported from all quarters, usually of a mild and short course.

SUCCESSOR TO SIR ANDREW CLARK. — Prof. J. Russell Reynolds, M.D., has been elected to succeed Sir Andrew Clark as President of the Royal College of Physicians. He received seventy-five votes. Dr. Samuel Wilks of Guy's Hospital received seventy-two votes.

MR. ANTHONY COMSTOCK AND GYNÆCOLOGICAL TABLES. — The action which Mr. Anthony Comstock, recently brought against the manufacturers of gynæ-

cological tables for sending indecently (?) illustrated circulars through the mails has been dismissed by the Commissioner at Albany.

A Severe Penalty. — An Italian physician has just been tried for refusing to visit patients ill with the cholera, and sentenced to twenty days' imprisonment, to pay a fine, and is enjoined from practising his profession in any way for three months. During the previous epidemic of cholera the peasants were accustomed to shoot and stone physicians who attempted sanitary improvements or to give medical aid. Between the law, which says *must*, and the people, who say *shall not*, physicians have a hard time in Italy during cholera epidemics.

A Remarkable Prescription. — The following prescription has appeared in the column of therapeutic notes in two esteemed medical contemporaries:

FACIAL NEURALGIA.

℞ Dover's powder.
Sulphate of quinine, . . aa . 3i.
Ext. of valerian, q. s.
M. Pil.
Sig. Four daily, seldom fails.

The New Orleans Lepers. — The condition of the nine lepers confined in the hospital at New Orleans is said to have become a matter of public attention in that city. The building is reported in an almost untenable condition, unprotected from the weather and insufficiently heated. The eight men and one girl are expected to wait upon themselves and provide their own food upon a small weekly allowance, which admits of nothing more than the necessities of life.

The Vienna Food Exposition. — An international food exposition is to be held in Vienna next spring, to which our Government has been invited to contribute. While no special appropriation is available for the purpose, the Department of Agriculture has taken an interest in the exhibit, and directed its representative in Central Europe to do all in his power to aid American exhibitors.

Human Sausages. — A story comes from Saxony of a most attractive character. A soldier having purchased a ten-pfenning sausage found in it the tip of a human finger-nail and bone. The vendor was brought to trial, and testified that the finger was cut off by the chopping machine and while he went to staunch the wound his assistant came in and completed the making of the sausage meat, in which he incorporated his master's finger.

BOSTON AND NEW ENGLAND.

The New England Cremation Society. — The annual meeting of the New England Cremation Society was held in Boston, December 19th. Bishop Lawrence was the chief speaker, and gave as his opinion that cremation, as a means of disposing of the bodies of the dead, is reverent, proper and healthful. As showing the progress of public opinion with reference to cremation we may mention that the remains of the Dowager Duchess of St. Albans, who died on December 2d, and Dr. Bradby, formerly Master of Haileybury College, were cremated recently, in accordance with the terms of their wills.

Small-Pox in Boston. — During the last week there have been four new cases and one death from small-pox.

Small-Pox in Brookline. — A case of small-pox occurred in Brookline December 16th, which is traced directly to the Morrison family in Boston.

Small-Pox at Methuen. — A case of small-pox has occurred this week at the Methuen almshouse. The man had recently come from Boston.

A Physician's Bequests. — The will of the late Dr. Lucius F. Billings of Barre, bequeaths his medical library and surgical instruments to the Worcester County Medical Society. On the decease of Mrs. Billings, $5,000 is bequeathed to Harvard University, to be kept as a permanent fund for the medical department, the annual income of which is to be used for scholarships for the benefit of poor but deserving medical students.

Hydrophobia in Connecticut. — A considerable epidemic of hydrophobia exists at Westville, Conn., among dogs and cows. All the cases are traced to the flying visit of a strange and rabid dog some four weeks ago.

Influenza in Connecticut. — Many cases of influenza are reported from New Haven, Norwich and Middletown, Conn., while many smaller places report their share. The cases are all said to be mild, though one town is said to have many cases of the grip, while "colds and incipient pneumonia are numerous."

NEW YORK.

Discussion upon Dr. Biggs' Report on Tuberculosis. — At the meeting of the Board of Health held December 13th, the report of Dr. Biggs on Tuberculosis came up for discussion; and Commissioner Cyrus Edson offered the following recommendations:

"(1) That a circular be prepared for distribution setting forth the danger of contagion from tuberculosis.

"(2) That physicians be required to report all cases of tuberculosis within seven days of the time when such sick person comes under observation.

"(3) The medical sanitary inspectors should, as part of their duty, investigate cases of the disease reported, and take specimens of sputa for diagnostic purposes, as is done in cases of diphtheria. Upon the verification of the diagnosis, the inspector should visit the physician reporting each case and request him to fully instruct his patient, and the person with whom he is in contact, concerning the nature of the disease and the danger of its transmission."

The following resolutions were also adopted:

"*Resolved*, That this Board urge upon hospital authorities of the City of New York the importance of separation, so far as possible, in the hospitals of this city of persons suffering from pulmonary tuberculosis from those affected with other diseases, and urge that

proper wards be set apart for the exclusive treatment of this disease: and, be it further

"*Resolved*, That the Commissioners of Charities and Correction be recommended to take such steps as will enable them to have and control a hospital to be known as 'The Consumptive Hospital,' to be used for the exclusive use of this disease, and that, as far as practicable, all inmates of the institutions under their care suffering from tuberculosis be transferred to this hospital."

The Board also ordered that the disinfecting corps disinfect places where evidence of infection exists, whenever in the opinion of the Chief Inspector for Contagious Diseases it shall be necessary.

APPOINTMENT TO THE BUFFALO STATE HOSPITAL FOR THE INSANE. — Governor Flower has appointed Dr. Wm. S. Tremaine, of Buffalo, manager of the Buffalo State Hospital for the Insane.

DEATH FROM HYDROPHOBIA. — Cornelius Minton, of Fair Haven, N. J., a lad fourteen years of age, died of hydrophobia on December 9th, after a two days' illness. He was bitten by a rabid dog on October 20th, while riding a bicycle, and the wound, which was slight, was cauterized; but no other precautionary measures were taken. It is said that two other individuals were bitten by the same animal.

DR. H. W. SPENCER. — Dr. Henry W. Spencer, formerly of New York, died at his residence in Paris, France, in November, at the age of eighty-six. In 1858 he was appointed United States Consul to Paris, and his house there became a famous rendez-vous for his visiting fellow-countrymen. During the Empire, he gave a number of handsome entertainments, and at these, American artists and medical students, however straitened their circumstances, were always most welcome guests.

Miscellany.

HOT BATHS IN JAPAN.

AN interesting account of use of hot baths by the Japanese is given by Prof. W. K. Burton, in a recent number of the *China Medical Missionary Journal*. Every Japanese of every rank in life takes his bath daily, and in water at a high temperature. The private and public baths vary only in size and arrangement, enormous tubs, square or oval in shape, with large copper tubes passing through them, in which charcoal is burned to heat the water.

"In the public baths it used to be the universal custom for men and women to bathe together, and the baths were commonly open to the street. Of late years, out of deference to foreign prejudice, the baths in the towns have been closed in, and there is always a division between the women's and the men's bath, although it is of the flimsiest nature. It is sometimes merely a bamboo laid across the bath at the surface of the water. In the country, and specially at all places where there are medicinal baths, promiscuous bathing is still common, but there is never any evidence of indecent thought or feeling."

The general time for taking the bath is after the work of the day is done, but those who have leisure bathe several times a day. The temperature seems astonishingly high to one who has not tested it. "Anything below 110° F. is considered too cold, anything over 120° F. unpleasantly hot, though in some cases this temperature even is exceeded." The bather, after laving himself with the hot water, and pouring some on his head, enters the bath and sits immersed in the water quite up to his neck for from two or three minutes to a quarter of an hour, according to his inclination and the heat of the water. There is no ill effect upon the health of those who bathe so often in this hot water: and the general healthiness of the Japanese who live among sanitary conditions in many ways defective, is considered greatly due to this habit.

When Japan was first opened to the world, and the people began to take advice of western nations in all things, the foreign physician strongly condemned the practice as bad; and "a regulation was issued that the public baths must not be heated above a comparatively low temperature. The great discontent of the people led to an investigation by physicians, both Japanese and foreign, with the result that except in cases of those suffering from weak heart, the custom was pronounced harmless."

"It might be supposed that the habit of public bathing would lead to the communication of infectious diseases, the more especially as, in some of the public baths and the hotel and tea-house baths, the water is not changed as often as might be advisable. All that can be said is that investigation has so far failed to detect such communication of diseases, and that, if there is occasionally a solitary case, the evil is much more than counterbalanced by the general improvement in health that results from the cleanliness gained by general hot bathing, which could not be indulged in by the poorer classes were it not for the public baths."

The charge for the use of the public bath is one cent. The many hot volcanic springs are much used for the baths. The most famous of these is that of Netsu-no-yu (literally fever bath) or Kusatsu. The springs of this town have been in use for more than a thousand years, and their repute is indicated by an odd proverb that "even Kusatsu cannot cure love." The highest value of the bath is in the treatment of syphilis, leprosy and skin diseases. The temperature of the bath at its source is 160°; but the water is cooled before using to baths of three temperatures, the hottest being 128° F., at which heat it is actually used. The water contains free hydrochloric and sulphuric acid to the extent of one-quarter per cent. of the whole volume, and about three volumes of sulphuretted hydrogen per thousand, and one part of sulphide of arsenic in one million parts. The effect of all these after about ten days' treatment is to produce "blisters about the scrotum, between the legs and under the arms, resulting in the characteristic 'Kusatsu walk,' the patients moving slowly along, with legs stretched wide apart and the arms held well away from the body." The pain of bathing in this state is such that for the two hottest baths the patients undergo a sort of semi-military drill under a master.

"About half an hour before bathing time a trumpet is sounded, and the bathers begin to arrive. They take their places around the bath, and take turns in vigorously churning up the water with broad boards. This

exposes the water to evaporation and cools it to the temperature mentioned above. As the time for bathing approaches, the bathing-master, in a white dress, takes his place amongst the bathers. He gives a signal, and every bather takes a large wooden ladle with a short handle, bends down and begins to pour water over his head. This is to prevent the likelihood of congestion from the excessive heat of the bath. The pouring continues for five minutes. And then there is a second signal, at which all stop for a rest of three minutes. During this time, those who have been most affected by the treatment wrap thin cloth bandages around the parts most affected, as this reduces somewhat the torture of the parboiling process. At the end of the three minutes, the signal to enter the bath is given, and very slowly the bathers lower themselves, taking about thirty seconds before they are completely immersed. And now begins the most extraordinary part of the whole affair. It is a sort of a chant on the part of the bathing-master, with an answering chorus from the bathers, the whole thing intended to encourage them in bearing the pain. The chant of the master, freely translated, is somewhat as follows:

"'If you are all ready enter the water.
There are three minutes.
There are only two minutes more.
Persevere a little longer.
There is only one minute more.
Persevere only a very little longer.
Get out of the water *slowly*.'

"To each of these sentences, chanted in a strange manner, the hundred or so of bathers answer from the bath with a sound that is between a shout and a wailing cry, and that can be heard all over the town. The order to get out of the bath is obeyed, but there is no slowness about the movement. Each bather leaps and scrambles from the bath with an agility that shows how hard he has found it to bear. Nearly a hundred enter the bath at once, sitting just as closely as they can, and the bathing goes on for more than an hour, five times a day. The usual course is about a month, and, after it is over, the bathers generally proceed to another hot-spring village where the waters have the effect of very quickly healing the skin."

THE ELEVENTH INTERNATIONAL MEDICAL CONGRESS.

ROME, MARCH 29 – APRIL 5, 1894.

PROF. E. MARAGLIANO, M.D., of Genoa, Secretary-General of the Eleventh International Medical Congress, makes the following announcement through Dr. A. P. Clarke, of Cambridge, Mass.:

In consequence of the adjournment of the Congress, Articles I and II of the Statutes have been altered as follows:

ART. I. The Eleventh International Medical Congress will be inaugurated in Rome on the 29th March, 1894, and will close on the next following 5th April.

ART. II. Papers to be read before the Congress should be announced not later than the 31st January, 1894. The title should be accompanied by a very short *précis* of the paper and by the conclusions; the latter will be printed by care of the board, and distributed among the members.

Papers announced after the 31st of August, 1893, will be marked in the Provisional Programme with an asterisk.

The Provisional Programme will contain also those previously announced papers which have been published in scientific papers after the adjournment.

The railway companies have established that the reduction of fares should be available from the 1st of March till the 30th of April, 1894.

The travelling tickets of membership and railway passes will be sent by the Secretary-General's Office to each member enrolled before the 14th of February, 1894.

The first edition of the Provisional Programme is going to be printed, and will contain details concerning the Congress and a list of all the papers announced till November 15, 1893.

It should be well to remember the following articles of the Statute:

ART. 2. All physicians are admitted to have a part in the work of the Congress, provided that they have satisfied the conditions of inscription and obtained the required ticket of membership.

ART. 3. The doctors of other sciences who, for their special studies, should have an interest in the work of the Congress may be enrolled, with the duties and rights of the members of the Congress who are doctors of medicine, being entitled to partake of the work, either by reading papers or by having a part in the discussion.

ART. 4. The admission fee to the Congress is fixed at twenty-five francs – one pound sterling; it entitles to a copy of the report of the Congress, which will be forwarded to the members as soon as it is published.

ART. 17. The persons, who, not being comprised in the Article 3, are interested in the work of a Section, may obtain admission by consentment of the President of the Congress.

Such persons will receive a special ticket, and will pay the admission fee like the other members, being entitled, however, to a copy of the Report of the Congress.

The persons thus admitted to the Congress may speak neither in the general sittings nor in the sittings of the sections to which they are not enrolled.

ART. 18. The students of medicine may be invited or admitted by the President to attend the sittings, but only as hearers.

They must obtain a special ticket which will be granted them without payment.

Members may apply to the Secretary-General's Office for railway passes for their wives and adult members of their families; the latter may be enrolled on payment of a fee of ten francs.

Medical gentlemen and all persons who wish to take part in the Congress are requested to give their names as soon as possible, writing for this purpose to the Secretary-General of the Eleventh International Medical Congress, Genoa.

Fees should be paid by post-order or draft to the order of the Treasurer, Prof. L. Pagliani, M.D., Director-General to the Office of Public Health, Home Department, Rome.

THERAPEUTIC NOTE.

SUB-CONJUNCTIVAL INJECTION OF CORROSIVE SUBLIMATE.[1] — Dufour, after making use of sub-conjunctival injections of corrosive sublimate in over ninety patients, concludes that it is the best treatment for the following five varieties of ocular inflammations: (1) in purulent ulcers and suppurative keratitis; especially when pus is present between the corneal lamellæ; (2) in deep keratitis from local causes; (3) in deep exudations, with the development of cells in the vitreous, which almost surely leads to phthisis bulbi; (4) in sympathetic ophthalmia; (5) in even non-syphilitic choroiditis in the early stages. The solution used varied in strength from 1 to 1,000 to 1 to 4,000. The most to be recommended is one of 1 to 2,000, which is easily tolerated and of sufficient strength.

[1] Deutsche Med. Zeitung, 1893, 79.

METEOROLOGICAL RECORD.

For the week ending December 9, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S.. 3	29.95	33	42	24	93	100	96	E.	N.W.	22	1	R.		.90
M.. 4	30.12	28	35	20	90	85	88	N.W.	N.W.	15	18	N.	C.	.79
T.. 5	30.21	18	22	14	78	100	89	N.	N.	17	26	O.	N.	.57
W.. 6	30.23	29	40	18	79	68	74	W.	W.	8	10	C.	C.	.26
T.. 7	30.31	36	46	26	78	77	78	W.	N.W.	4	6	O.	C.	
F.. 8	30.41	29	34	24	64	64	64	N.W.	N.E.	6	2	C.	F.	
S.. 9	30.14	35	41	29	77	100	88	S.W.	S.E.	4	3	F.	R.	.33
☞	30.19		37	22			82							2.85

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 9, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Diarrhœal Diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,891,306	731	288	18.48	21.14	1.26	.70	10.50
Chicago	1,438,000	—	—	—	—	—	—	—
Philadelphia	1,115,562	452	143	11.00	12.76	.88	2.86	5.06
Brooklyn	978,394	340	114	11.07	21.17	.58	.58	6.38
St. Louis	560,000	—	—	—	—	—	—	—
Boston	487,397	191	57	16.43	16.43	1.59	1.59	10.07
Baltimore	500,000	—	—	—	—	—	—	—
Washington	308,431	118	31	13.60	17.30	2.55	5.10	1.70
Cincinnati	305,000	176	42	5.10	27.93	—	2.28	2.85
Cleveland	290,000	130	39	10.78	23.87	.77	3.08	3.08
Pittsburg	263,709	—	—	—	—	—	—	—
Milwaukee	250,000	111	39	11.81	27.27	.90	—	6.36
Nashville	87,754	30	9	6.66	13.33	—	3.33	3.33
Charleston	65,165	42	13	2.38	11.90	—	—	—
Portland	40,000	13	2	7.69	15.38	—	—	7.69
Worcester	96,217	22	11	9.10	27.30	—	4.55	—
Fall River	87,411	40	16	17.50	25.00	12.50	—	2.50
Lowell	77,191	27	10	18.50	18.50	3.70	3.70	—
Cambridge	77,100	33	10	9.09	18.18	—	—	—
Lynn	62,656	—	—	—	—	—	—	—
Springfield	48,684	15	4	13.33	6.66	—	—	6.66
Lawrence	48,355	—	—	—	—	—	—	—
New Bedford	45,886	14	4	14.28	7.14	—	14.28	—
Holyoke	41,278	9	5	11.11	44.44	—	—	11.11
Salem	32,233	13	1	—	7.69	—	—	—
Brockton	32,140	9	4	—	—	—	—	—
Haverhill	31,396	9	2	—	11.11	—	—	—
Chelsea	30,264	18	6	—	5.55	—	—	—
Malden	29,394	13	2	7.69	—	—	—	7.69
Newton	27,556	12	1	—	25.00	—	—	—
Fitchburg	27,146	—	—	—	—	—	—	—
Taunton	26,972	15	3	6.66	20.00	—	—	—
Gloucester	26,688	—	—	—	—	—	—	—
Waltham	22,058	8	2	12.50	12.50	—	—	12.50
Quincy	19,642	2	1	—	—	—	—	—
Pittsfield	18,802	3	1	—	66.66	—	—	—
Everett	16,585	4	3	25.00	—	—	—	25.00
Northampton	16,331	8	1	37.50	25.00	—	12.50	—
Newburyport	14,073	3	0	—	33.33	—	—	—
Amesbury	10,920	1	1	—	—	—	—	—

Deaths reported 2,149; under five years of age 868; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fever) 341, acute lung diseases 504, consumption 284, diphtheria and croup 166, typhoid fever 44, diarrhœal diseases 29, scarlet fever 28, measles 24, whooping-cough 18, cerebro-spinal meningitis 18, malarial fever 8, small-pox 4.

From scarlet fever New York 5, Philadelphia and Boston 4 each, Brooklyn and Cambridge 3 each, Milwaukee and Chelsea 2 each, Cleveland, Fall River, Somerville, Northampton and Medford 1 each. From measles New York 15, Brooklyn 4, Milwaukee 3, Philadelphia and Northampton 1 each. From whooping-cough New York 6, Philadelphia 5, Brooklyn 3, Boston, Washington, Cincinnati, Cleveland and Taunton 1 each. From cerebro-spinal meningitis New York 5, Washington 4, Lowell 3, Cleveland 2, Brooklyn, Worcester, Springfield and Chelsea 1 each. From malarial fever New York 6, Cleveland and Nashville 1 each. From small-pox New York 4.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 9, 1893, TO DECEMBER 15, 1893.

Leave of absence for four months, to take effect about January 6, 1894, with permission to go beyond sea, is granted MAJOR ALFRED C. GIRARD, surgeon, U. S. A.

FIRST-LIEUT. ALLEN M. SMITH, assistant surgeon, granted leave of absence for four months, to take effect on or about January 4, 1894.

The leave of absence granted MAJOR PETER J. A. CLEARY, surgeon, on surgeon's certificate of disability, is extended four months, on surgeon's certificate of disability, on condition that he report in person to the commanding officer, Army and Navy General Hospital, Hot Springs, Ark., on or before December 11, 1893, for treatment therein.

Leave of absence until February 22, 1894, is granted MAJOR JOHN BROOKE, surgeon, U. S. A.

FIRST-LIEUT. BENJAMIN L. TEN EYCK, assistant surgeon, is assigned to station at Fort McIntosh, Texas, for field duty in the department of Texas.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING DECEMBER 16, 1893.

C. A. SIEGFRIED, surgeon, detached from U. S. Training-ship "Richmond" and granted four months' leave.

J. A. HAWKE, surgeon, detached from Widows Island Hospital and special duty Portsmouth, N. H., and to the U. S. Training-ship "Richmond."

M. H. SIMONS, surgeon, ordered to Widows Island Hospital and to special duty at Portsmouth, N. H.

R. C. DEAN, medical director, ordered as President, Board of Medical Examiners, Washington, D. C.

A. A. HOCHLING, medical director, detached from Board of Medical Examiners and wait orders.

MICHAEL BRADLEY, medical director, relieved as President of Board of Medical Examiners and ordered as member of the Board.

SOCIETY NOTICE.

NORFOLK DISTRICT MEDICAL SOCIETY. — A meeting for Scientific Improvement will be held at the Norfolk House, Roxbury, Tuesday, December 26, 1893, at 7.45 P. M.

Communications: "A Case of Acute Infection, simulating Acute Yellow Atrophy of the Liver," Samuel Crowell, M.D.

"Puerperal Eclampsia, with report of cases," H. D. Arnold, M.D.

Coffee at 9.30.

JAMES C. D. PIGEON, M.D., *Secretary.*

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The lecture on the "Structures and Functions of the Uterus" by Dr. Charles S. Minot, in the course of free evening lectures at the Harvard Medical School, which was announced for Wednesday, December 27th, will be delivered instead on *Tuesday evening, December 26th*, at 8 o'clock. Dr. Minot's second lecture will be, as announced, on Wednesday evening, January 3, 1894.

RECENT DEATHS.

ELBRIDGE GERRY WHEELER, M.D., M.M.S.S., died recently in Middlefield, Mass.

JOHN RENTON, M.D., M.M.S.S., died in Boston, December 15th, aged seventy-four years.

BOOKS AND PAMPHLETS RECEIVED.

Charaka-Samhita. Part VII. Translated into English and published by Avinash Chandra Kaviratna. Calcutta: D. C. Bass & Co. 1893.

New York County Medical Association, State of New York; Register of Members; Manual of Information. New York: Published by the Association. 1893.

Lecture.

LECTURES ON SURGERY.[1]

BY DAVID W. CHEEVER, M.D.,
Professor of Surgery in Harvard University.

XXII.

DISEASES OF THE JOINTS.

We begin to-day with diseases of the joints. I need not say that they are very common. Why they are so common seems to depend on two causes. In the first place, the parts around the joints are the centres of bony growth, epiphyses, consequently they are changing and only partially formed up to adult life. That would explain a good deal the tendency to disease in children. Again, in adult life, as in children, they are always centres of motion, always subjected to friction, always subjected to strains, to overuse; and they are the working centres, so to speak, of the bony frame, on which all the wear and tear comes, — causes certainly why, in susceptible persons, they so easily become the seat of disease.

SYNOVITIS.

Take the simplest form of affection about the joints which concerns only the synovial sac, — synovitis. In the simple acute form the progress is about as follows: The patient after a blow or sprain feels a slight lameness in the knee-joint, we will say. There is pain on flexion and in putting weight on the joint. Very soon a slight puffing on each side of the patella. This expands soon afterward across the bottom of the patella under the patellar ligament, increasing symmetrically, forming an ovoid and finally fluctuating swelling, and lifting the knee-pan up from the joint. While this is taking place, of course the synovial sac is removed away from its position around the bones. The muscles and fascia which are attached and prolonged into it lose their firm grip and bearing upon the bones themselves; and the joint becomes weak, and moves from side to side; and although it may not be the seat of great pain, yet the patient feels insecure, and is in constant danger of falling if he puts his weight on it. As the fluid increases the pain generally diminishes very much. During this effusing stage there is heat about the joint; and this continues during the acute stage; but after the fluid has been all poured out; after a few days, the heat and pain pretty much cease. The weakness of the joint remains. The swelling is very marked and characteristic. The patella together with the quadriceps extensor is lifted up from the front of the femur; and the result is what is called floating patella, and increased insecurity in using the quadriceps extensor muscle.

This disease may have various terminations. If properly treated and in a good subject, this fluid may be wholly absorbed again in a short time; in a few weeks, not in a few days. It goes away slowly, lingers last, naturally, at the bottom of the sac; and when it is nearly gone can still be detected by making the patient strip and stand upright and comparing the two knees; it is found that there is a manifest puffing below one patella, which does not exist on the other side. As this fluid goes down, it is apt to leave some thickening of the sac itself; and after the sensation of fluid is absent, there is still a little doughy feeling about the joint. In the perfect restoration of the part this finally disappears, and the knee becomes as it was before; but in order to become as it was before usually several months are consumed. What is more apt to take place is that the fluid is absorbed to a certain degree; and then the latter portion of it is indolent; the sac becomes slightly thickened like an inflamed pleura, and finally slight fibrous thready adhesions are formed across from one side of the synovial sac to the cartilages and the bones; and what is called fibrous anchylosis results. If now this goes on, finally the fluid is wholly absorbed. These threads shorten and become firmer; and what is called false anchylosis, a stiff knee, stiff by fibrous attachments, is the result.

On the other hand, acute synovitis may pass into the chronic form. In that case the patient frequently has recurrent attacks; has his acute synovitis; has it restored to a certain degree, and then the joint puffs up again; fluid re-forms; and the fluid is slow in going away the second time, if it can be noticed to go away at all. The reason is that successive inflammation of the synovial sac renders it incapable of absorption, and the knee becomes bathed in an indolent fluid of serum and perhaps some fibrin; it is not absorbed and forms the condition called chronic synovitis; sometimes called dropsy of the knee-joint.

The treatment of acute synovitis to be best should be immediate. Unfortunately the patient does not generally apply to the surgeon or physician until the disease has existed some days, and effusion is already well-formed. Immediate confinement in bed or on a sofa should be insisted on; the limb put on a hamsplint so that the joint may be restricted in motion and yet the front of the knee-joint left uncovered so that it may be treated. At first it should be treated with cooling and evaporating lotions during the early inflammatory stage; later with more stimulating applications like blisters and tincture of iodine; and finally by pressure; and pressure and firm bandaging will usually complete the cure. This all takes several weeks. Afterwards the patient should be instructed to wear a flannel bandage a number of weeks; to use the limb with caution; carry a cane; and be careful not to strain the recently healed parts, so that any other effusion may take place. This usually suffices to cure an acute synovitis in the healthy subject.

The chronic synovitis, on the other hand, is extremely obstinate of treatment; and although we rest it; put it on a splint; apply blisters, iodine, etc., yet the fluid sometimes does not go away. Under these circumstances the judicious application of continued pressure is of great benefit; and this should be applied in one of two ways. In the old way, — still a very good way, — by putting on dry compressed layers of sponges, wetting them and making firm compression on the whole synovial sac. After this has done its work and is beginning to loosen, re-apply. In this way a strong uniform pressure is got over the sac, and the result is to gradually absorb the fluid by compression.

Another method, which is more ready and perhaps as good, is to apply around such a joint a rubber bandage which can be put on and the patient strictly confined to bed. That can be readjusted from time to time, and firm pressure made on the joint.

Still there sometimes remain obstinate cases of dropsy of the knee-joint, which are indolent, painless, free from fever and irritation, with no signs of absorp-

[1] These are unwritten lectures printed from the stenographers' reports. Verbal corrections are made in revision, but no rhetorical changes. They were delivered to the third and fourth classes as part of the regular course.

tion. In such a case as this, tapping of the joint may be done with advantage; and aspiration having been used, the joint can be pumped off by the vacuum, and pressure put on. If this measure proves insufficient and fluid afterwards re-forms, a second time we may tap and draw off a portion of the fluid, and inject into the joint some irritating preparation: tincture of iodine, a preparation of ammonia, a weak solution of carbolic acid, or something of that kind. Absolute alcohol has been injected with a good deal of benefit. This lights up an inflammation; converts an old chronic dropsy into a pretty lively synovitis for the time being; and after that has subsided, we put on pressure, and by subsequent bandaging lead to the absorption of the fluid.

In a person not strong we always have a dread that an acute synovitis, if not promptly cured, may lead to something worse; and that something worse is the change in the synovial sac described by Brodie as pulpy degeneration of the synovial membrane. The change takes place in the inner lining of the synovia, where it becomes thickened and roughened; and softens and undergoes a change somewhat like that undergone in the arteries in atheromatous disease. Bony plates are not formed; but ulceration of the surfaces; fatty degeneration and formation of flakes of fibrin; and such a change in this membrane that it is impossible for it ever to wholly recover. In these cases we find the young subject with a permanently altered joint as to its usefulness. The natural outlines of the joint are lost. The patella is no longer distinct. The sulci on either side cannot be made out. The shape of the joint is still entirely symmetrical, alike on both sides. If it is alike on the two sides it means disease in the synovial sac; if on one side more than the other, it means disease outside the synovial tissue, or else inside of the bone. The joint becomes spindle-shaped; the muscles above and below waste to a certain degree; the shape of the joint is lost. It is doughy; not hot to the touch, particularly; slightly painful, and remains in an indolent state. It cannot remain in this condition without some subsequent change; and the next change which takes place is that the effusion which was present in the joint gradually degenerates, and finally, incapable of absorption and subject constantly to friction and motion, and also subject to the influences of a feeble constitution in the patient, the fluid becomes changed into pus, and suppuration in the joint takes place. Now occur fever and chills and sweats and pain, all the phenomena of hectic. Finally the joint begins to lose its symmetrical appearance; swells on one side or the other; reddens; becomes acuminated; thins and bursts; and we have suppurating disease of the knee-joint, with a sinus leading into it, and the constant discharge of pus.

ULCERATION OF CARTILAGE.

We have another form of disease of the joint, called ulceration of cartilage. By that we mean decay of the cartilage.

The cartilage is an extremely lowly-organized body, nourished mainly by imbibition from the neighboring vessels and tissues. Its nutrition is never at a very high point. It easily falls into decay, and anything which affects either surface of the cartilage from the sides where it gets its nutrition, cutting off the supply of blood and the proper absorption of fluids into it, may lead to its decay: hence decay or ulceration of the interarticular cartilages, or the articular cartilages of the bones may arise, on the one hand, from the diseased synovia bathing it in a purulent secretion, and preventing its nutrition on that side; or it may arise from the disease beginning in the bone itself, whereby its nutrition on the side where it clings to the bone is cut off by occlusion of the vessels. In the first place, it is due to suppurating synovitis; and, in the second place, to disease of the cancellous tissue of the epiphysis of the femur or tibia; and frequently that, also, is of a tuberculous origin. Tuberculous disease, cheesy degeneration in the cancellous tissue of the head of the bone, soon affects the overlying cartilage, cuts off its nutrition, and leads to its ulceration. The result is, that as this diseased condition goes on in the feeble subject, that the cartilage loses its lustre and becomes yellow and dull, flattens off; a portion decays and drops into the joint. If the disease is going on on both sides, erosion takes place rapidly; and in the advanced state we find only shreds of cartilage lying about the bone, and the cancellous tissue of the bone already exposed, and rough and carious.

So far, then, with the exception of tubercle, every change we have described is in the joint and symmetrical, and outside of the bones themselves. All these changes, then, for example, would be accompanied by no change of shape of the bones whatever, and, were we to judge by the bones alone, we should not say that the joint was diseased in the slightest particular.

I will speak now of the other series of changes which begin in the bones. When tuberculous degeneration or any change begins in the epiphysis of the femur between the two condyles, it leads to a congestion, and then to inflammation and effusion of false products into the cancellous tissue. This gives rise to dull, aching pains which are persistent in character, to elevation of the temperature in the joint itself, and to the usual symptoms of hectic. The most peculiar change which takes place, which may be noticed by the outside observer, is the expansion of the bone itself; and the end of the femur visibly grows, enlarges, and broadens under observation, so that from being normal it widens out, until it is immensely enlarged on one side or both, sometimes more on one side than on the other, frequently more on the inner than outer condyle, until there is a large bulging of bone over the inner side of the condyle of the femur. This means bone disease, an ostitis going on in the cancellous tissue, a softening and caries taking place there, generally from a tuberculous deposit. The pulpy degeneration of the synovial membrane, which follows in the scrofulous subject, in acute or chronic synovitis, and the ulceration of cartilage, which is the next stage in the diseased process, and which is, in consequence of the cutting off of the nutrition of the cartilage, eventually leading to suppuration and change in the joint, and finally to disastrous disease — all these forms of disease have been called, among the laity, by the common name of white swelling. White swelling, in popular parlance, means chronic synovitis affecting the sac, the cartilages and the bone, generally of strumous origin, and finally resulting either in anchylosis or abscess. The reason of the name was probably because it is a swelling of the joint which does not change its color. It never reddens until the acute process has burst through the sac into the cellular tissue. It is a pasty, pale, œdematous, soft tissue,

which retains the imprint of the finger about the joint, has lost the true shape of a joint, is rather free from acute heat or inflammation, and is in this chronic strumous state which will end, probably, in suppuration, ulceration of cartilage, abscess in the joint, caries, anchylosis, if cured; excision, or amputation if not cured.

Still another change, a very curious one, takes place. After the sac is altered, these diseased fluids poured out, cartilages eaten away, bones become carious, still inside the sac are shut-up pus and decayed products; if acute abscess does not take place on the outside, the joint still retaining its contents to the last, by and by another change begins to be observed in the knee. It is spontaneous dislocation of the head of the tibia back of the femur. The disease has gone so far, it finally attacks the ligaments, loosens them; and the power of the long muscles pulls the tibia backwards and dislocates it almost entirely behind the condyles of the femur. In such a joint as this you find a peculiar shape beginning to develop in the front of the joint. The outlines originally lost and indefinite become more distinct. The patella stands out, the condyles of the femur stand out. You will see, on close observation, that the tibia is no longer on a line with the femur, and is dropping back; and the condyles and the patella are projecting out over it at a sharp angle. This change goes on further and further; and in very old, crippled subjects, who have had this disease a very long while, instances are found where the tibia is absolutely dislocated backwards into the popliteal space, the limb shortened, and the femur thrown entirely in front of the lower bone. Usually it does not go so far as that.

If a moderate and partial dislocation, it is still capable of spontaneous cure. After a term of years, without the occurrence of any external discharge of pus, inspissation of pus takes place, the formation of fibrous adhesions, the formation of bony adhesions, and finally, cure results, with a partial dislocation and a firm, bony anchylosis.

This bony union is called true anchylosis, but is not necessarily accompanied by dislocation.

What are the symptoms of this graver class of diseases? We have seen how insensibly in the bad subject they shade off one into the other, usually pursuing a line of well-marked steps or stages of gradual degeneration of the part. We have said it is quite easy to recognize an acute synovitis. The swelling is great, fluctuation is considerable, the disease is painful, the cause is quite evident, the patient is fully aware of what is taking place and the diagnosis is practically made with great facility, and a mistake perhaps is seldom made. Not so with these insidious stages of chronic synovitis, for the symptoms are slight and obscure, and they continue for months, perhaps, before the attention of any one is called to them. One great reason for this is that both in the knee and in the hip they occur largely in young children, too young to tell their symptoms, and indifferent, as children always are, to bodily suffering, providing they can keep about without having to lay up, and play around with their companions under the emulation that always exists at that age. Children are very peculiar in this respect. They of course never simulate disease; never have hysteria or mimesis. They do not pretend to have what they do not have. It is only by sharp observation that you can find out in the little child that something exists which is pulling him down. In the knee-joint, for example, if the disease begins as pulpy degeneration and ulceration of cartilage, slight limping; favoring of the limb; bending of the knee; not carrying it quite straight; favoring it by walking on the toe; occasional attacks of fever and pain; starting pains at night. These last are the most characteristic signs of articular disease at all ages. They occur from the spasmodic contraction of the muscles after one falls asleep; and they occur also after amputation, making a painful jumping of the stump, after the limb is gone. The control of the muscles is lost in sleep. A spasmodic action of the muscles occurs, and the child wakes from pain, and falls asleep again. This occurs from diseases of joints; those affecting the synovia, the cartilages and the bones; and it does not occur usually in the simple forms of synovitis; and does not occur in the series of joint diseases which are hysterical, or mimetic. The signs then of this condition are insidious. We have a little limping, a little bending, yielding of the foot, a little change of shape, slight attacks of fever, frequent starting pains at night, and if we look at the joint it is somewhat altered in shape. Still more insidious are those changes where tuberculosis begins in the bone itself and expansion takes place in the condyles of the femur and the femur grows out on either side; and the child also limps slightly, bends the leg slightly, and has a certain amount of pain. You will frequently see children at the out-patient departments who run along with a slight limp, without good motion of the joint. Examining the two ends you find a great expansion on one side, not present on the other. At a later stage when suppuration has taken place and abscess is about to form, the symptoms become extremely severe and intense up to a certain point, and then are promptly relieved on the bursting of the abscess itself.

So much for the diseases of children and youths and young adults. Now the old people have their peculiar diseases of the joints which are very characteristic. We know that most of them are ascribed to rheumatism or gout, and with justice; but besides these there exists in the old a form of chronic arthritis which has sometimes been described as senile hip disease. The hip disease of old people is a matter of months, or years. The leg slowly shortens; the shape of the part changes; the joint still moves to a certain degree, but is stiffened; there is constant pain and lameness; and the patient, although accused of having had a fall that they may never have had, manifests all the signs of shortened femur, and goes about with increasing symptoms of hip disease, during the remainder of life. They are essentially cold inflammations; and the changes which take place are those of softening and absorption, rather than of acute suppuration. On the other hand, the very large class of diseases in the joints of old people which are due to gout or rheumatism are marked by very peculiar and easily recognized symptoms. The chronic rheumatic arthritis, or rheumatoid arthritis, in elderly people, is characterized first, by what is called a dry joint; the joint creaks and snaps on motion. This is especially true of the knee. The patient sometimes may be heard in the house walking down the stairs, while the patellæ snap upon the front of the femur. Similar creaking and rubbing takes place in the hip; in the bodies of the vertebræ; or in other joints. The shoulder becomes roughened and cracks on motion. This change is due to gouty

deposits on the articular surface of the joint itself. The joint surfaces become roughened; bony growths take place; fringes of little osteophytes grow about the articular surface; and creaking and rubbing take place which simulate exactly the crepitus of a fracture, no injury, however, having occurred. The patient being at an age to have this disease, we may diagnosticate this bony affection as chronic rheumatic arthritis. The joint is dry; rubs and grates; motion is restricted; anchylosis does not always take place; but restriction of motion to a very marked degree takes place, so that finally the patient becomes unable, perhaps, to get the hand up or behind the head, but can still make the to and fro motions in the joints. The motions of the knee and hip become restricted. These patients go on through life and die in this condition, lame, stiff, disabled; but the disease does not reach any higher grade of destructive process. Occasionally nature makes another change, which is very remarkable; and after they have been rough and crackling sometime the knee gets smoother and works better, and eburnation or ivory-like polishing of the surface takes place. The cartilage is gone; the bone is smooth and hard and rubs against another surface without the intervention of cartilages; and a species of smooth polishing down, without much synovial assistance, is made, and the patient moves about pretty well.

NEURALGIA OF THE JOINTS.

It is rather hard to say what it is. I believe it is almost always due to some unsuspected and unrecognized diseased condition of the bone itself, in the neighborhood of the joint. For example, a person too far advanced in life, and too active and of too many interests in this world to be suspected of wanting to lay up, complains of constant lameness in the knee. It is always located in one spot; shows nothing outside; you can feel nothing; appreciate nothing; no swelling, heat or change of outline, but an everlasting boring pain in the inner condyle when he gets tired; which obliges the patient after a half day's work to come home and rest his leg on a sofa, when the pain gradually subsides. It is probably due, so far as we can make out, to gouty changes in and about the joint itself; and just as in the arthritis deformans, so about the femur and in the larger joints, occasionally, gouty deposits take place, which are the seat of pain; these are probably chalky deposits, which are not sufficient to throw the joint out of position; but are the subject of constant painful friction, after the patient has long used the part.

A very large class of supposed diseases of the joints are due to an hysterical condition. They generally begin in the young and susceptible subject; not always a female, but often females; in consequence of a real injury. The patient gets hurt a little, not much; but she does not get well. When the time has passed for the effects of the bruise or slight synovitis or blow to be cured; when you think you can take the knee-joint and move it; and she says she cannot stand upon it; and cannot move it herself; and you can detect no ostensible disease whatever, you have got to suspect that the disease is in the mind, and not in the joint itself. It is what is called hysteria, a very false name. It has nothing whatever to do with the uterus. It is better called mimesis or simulation; not always conscious simulation. The patient may be perfectly honest, and self-deceived, on account of this peculiar mental tendency; weakness of will; the imaginative faculty, which is in excess. They get into a condition when they believe that the joint is diseased; that they cannot stand on it; that it is going to kill them if they get on it; and the longer this delusion exists, the more helpless becomes the joint. Finally, in such cases, unless relief can be given in some way, the patient, who cherishes this illusion, takes to her bed, and becomes what Dr. Channing described as the bed case; and nothing gets her up, except something which appeals more strongly to her imagination, than the surroundings in which she is. If there is a fire and the bed gets on fire, she will get up and go out. If influences of a hypnotic or spiritual kind are brought to bear, she may be immediately cured. If she can be shocked to get up, or induced to get up, she may be cured; but unless her will can be in some way got hold of, she does not make that effort; and the limb remains, what is called, an hysterical joint. Brodie, who practised among the wealthy and indolent classes in the latter years of his life, says hysterical joint disease was very frequent; and a majority of cases of joint disease he saw in the young were purely mimetic, and not real. In these cases the difficulty comes in making the diagnosis. We all know that organic disease may be behind these manifestations. Patients thought to be hysterical may be found to have internal cancer. We must be as sure as possible that the diagnosis is correct; and exhaust every means to try to find it. Try such a limb with the electrical current; test it carefully as to its temperature; have careful watch kept in the patient's sleep, to see whether she ever has those painful, nightly shrieks, which are almost pathognomonic of disease of the joint, and do not occur in the simulated variety. When the joint keeps the same temperature and shape and appearance, and the only change about the leg is that fatty degeneration is taking place in the muscles with wasting; meanwhile, the patient looking and remaining in perfect health; keeping a good complexion and a pretty good color, and only yielding to this peculiar condition of the joint; we may then be pretty sure that it is due to a misplaced effort of the mind; want of will, error in the imagination. It is a species of insanity, and should be treated with charity; but the cure will be brought about by mental treatment, and not treatment of the limb itself. Such a patient should be encouraged in every possible way to get up and try to put the weight on the limb. One may perhaps induce them to do so by the aid of crutches; massage and gymnastics are useful. Passive exercises may be given by other persons while the patient is lying down; and finally, perhaps, the patient may be persuaded to resist against the hand of the rubber, and make motions herself. If she once finds out that she can do that, the cure commences. Electricity is of great assistance. In addition to this, diversion of the mind; if the patient can be carried out of doors, amused; led to forget herself; and brought on from stage to stage, until she can be cured. More depends, I am inclined to think, in the treatment of this class of cases upon the personal magnetism of the individual, than anything else. Some people have the power of impressing those with whom they come in contact; of preserving always a certain belief and confidence in their assertions; and finally lead the patients out of their beds, and on to their feet, so that they walk. The most unfortunate thing which can happen is to remain at home and be

surrounded by a set of sympathizing friends, who believe in the reality of this false disease; who encourage every supposed pain and ailment; who shrink from anything being done; and unless the patient can be removed from such surroundings and started anew, frequently a cure is almost impossible. These cases, as I say, should be treated firmly; but they should be treated charitably; for they are practically and really a disease of the mind, and should be treated like other mental affections. Most of them, sooner or later, get well. Sometimes they take a year or two, sometimes some years. Occasionally one remains permanently through life; and such instances, of course, are very painful, because as time goes on it is evident that there is no disease; because the patient does not alter; no change in the joints; no abscess; no anchylosis; no formation of cancer; no pulpy degeneration; and the patient remains bedridden, but perfectly well.

HIP DISEASE.

Hip disease is one of the more marked diseases of the joints. It most frequently comes in children, fortunately, because in children it is capable of cure; and in adults it is not; unless the spontaneous stages of the disease have been gone through and the diseased condition terminated by the time puberty comes on; so far as my experience goes, the patient never gets well if the age of puberty is passed, and the active changes of hip disease go on; they last then through life, or until they destroy the patient.

This disease is supposed to originate in two different ways. Undoubtedly it does, like all the forms of which we have spoken, originate in two ways; beginning in the synovial sac, or in the head of the bone itself. It may begin as a chronic synovitis, with pulpy degeneration of the synovial membrane and ulceration of the cartilage, from cutting off of nutrition from that side of the cartilage; or it may begin as a tuberculous deposit in the head of the femur, and from want of nutrition from the inner side, lead to erosion of the cartilage; abscess, and all the phenomena of hip disease.

The symptoms which present themselves first are, usually, that the child begins to throw out the foot of the affected side a little more than the other side, as it walks. The limb is apparently lengthened. The child limps a little as it walks. It does not complain of much pain. No changes have taken place about the joint which give any characteristic appearances from the outside. As the disease goes on a little further, more pain is manifested; inability to walk with any freedom; and, after a while, the position of the limb and foot changes, and apparently a little shortening takes place. About this time the child usually becomes very sick, and an acute fever supervenes, with intense pain in the joint; the child lies in bed with the limb drawn up towards the abdomen to relieve and relax the part. The parts all about become shiny and thin and change in shape. The fold which exits normally between the buttock and the femoral muscles is lost. The hollow in the groin becomes filled up, so that the diseased side is full and flat; and, in addition, intense nightly starting pains with hectic; rise of temperature; sweats, chills, etc.; and then sudden and immediate and perfect ease. The child turns over, begins to laugh, feels better, wants to get up. The explanation is, that the earlier stages, marked by such extreme suffering, were those of an abscess distending the synovial sac to the point of bursting. Finally it bursts; pus pours out into the cellular tissues; the pain ceases; all symptoms are relieved, and there is a great remission in the course of the disease. This remission, however, is not of long duration; and after the child gets up it is soon found that dislocation of the femur takes place; the foot is turned in opposite the other; shortening of one and a half inches occurs. Another attack of fever comes on. The child goes to bed; is sicker than before; the hip becomes shiny; abscess bursts and the pus escapes externally. Relief of symptoms again follows. The child gets up and goes around with a stick or crutch, with dislocation on the dorsum; inverted foot; and the disease goes on through its other stages, which are chronic caries; and if cure can occur, finally, drying up of the abscess, and bony anchylosis on the dorsum of the ilium, with the head fastened in its new and false position.

Original Articles.

STRANGULATED HERNIA.[1]

BY GEORGE W. GAY, M.D.
Surgeon to the Boston City Hospital.

It is to be hoped that a report of the following cases of strangulated hernia may draw the attention of the younger members of the profession to the importance of giving to these patients *early* relief, and also to the necessity of rapid operations under certain circumstances. Another important lesson which one learns, before he has had very much to do with these cases, is that in many instances the vitality of the patient is exhausted to a much greater degree than is indicated to the ordinary observer by the general symptoms and appearance.

A Case of "Compound" Inguinal Hernia.

Mr. S., aged thirty-seven years, was operated upon at the City Hospital in 1878, for a recent hernia, which was attended by urgent symptoms indicating danger of strangulation. Eleven years later an effort was made to obtain a radical cure of the rupture by operative measures, but without success.

On April 18, 1893, this man came to the hospital in a buggy, walked into the accident room, and letting down his trousers showed what has been very aptly termed a "compound" hernia, by which is meant a protrusion of a portion of the intestines through the skin. The patient gave the following account of the accident: Twenty-four hours before coming to the hospital, while lifting a heavy weight, the cicatricial tissues at the site of the previous operation gave way, thereby letting the bowel protrude through the rent in the skin. He got into a car, rode home, went to bed, and remained there without any treatment whatever until the following day, when he got up, dressed, and rode to the hospital with a friend in an ordinary wagon.

Upon examination, about four inches of the small intestines were seen protruding from a small opening in the skin in the right inguinal region, between one and two inches in diameter. The bowel was distended and covered with a thick layer of dirty, grayish lymph. There were no signs nor symptoms of strangulation, a

[1] Read before the Boston Society for Medical Improvement, November 13, 1893.

condition that would probably not occur as readily from the constriction of thin, attenuated skin, as it would from the pressure of dense, unyielding fasciæ and tendons.

There was no vomiting, and the pain was only moderate. The belly was not distended, nor was there other evidence of general peritonitis. In short, the man was in very good condition.

The patient was profoundly etherized, the exposed gut was cleansed as thoroughly and carefully as possible, and after enlarging the opening in the skin, an effort was made to replace the protruding bowel. This proceeding required the combined manipulations of two pairs of hands for several minutes for its accomplishment, owing to the coughing and straining of the patient, who was very strong and muscular.

The lower or outer pillar of the external ring was absent, but a fairly successful effort was made to close the large aperture in the abdominal walls by uniting the inner pillar to the deep fascia below with silk sutures. The external wound was partially closed, and dressed with antiseptic compresses and spica bandage.

Little shock followed the operation. He vomited occasionally for two or three days, for which calomel was given in small doses. The bowels moved freely on the third day, and the convalescence was tedious and uneventful. The wound suppurated freely as was to be expected, but there were no complications. He was discharged from the hospital in eleven weeks, wearing a truss over a small granulating surface.

Considering the exposure and irritation of this patient's intestine, it is surprising that he did not develop general peritonitis. The external causes would seem to have been ample to produce such a result. We may express our ignorance upon this point by saying, that his tissue or his system was in a favorable condition to resist the onset or extension of serious inflammatory processes.

Several years ago a girl was admitted to the hospital with a large rosette of intestines protruding from a rent in the abdominal walls. The accident was due to the sudden rupture of an abscess. The bowel was covered with recent adhesive lymph, which matted the coils more or less firmly together. Dr. Cheever carefully cleansed the mass, separated the adhesions, and replaced the protruding structures. No untoward result followed.

Intestinal Resection for a Strangulated Inguinal Hernia. Death in eleven days.

Mrs. P., aged fifty-two years, entered the City Hospital April 6, 1893, with a strangulated inguinal hernia upon the right side. The rupture had existed fourteen years, and had been controlled by a truss till within a year. Symptoms of strangulation had been present for a week, and consisted of vomiting, constipation and pain in lower abdomen. A tumor the size of a hen's egg was situated over the right inguinal canal. It was free from impulse, and was irreducible. Considering the duration of the symptoms, the patient was in fair condition. The pulse was frequent, but of pretty good strength. The vomiting was stercoraceous. No delirium nor stupor.

The sac was opened quickly, and a perforation half an inch in length was found at the seat of the tight constriction at the internal ring. Three and a half inches of the small intestine, which was purple, thickened and not glistening, were excised. The bowel was closed by end-to-end coaptation with two rows of continuous silk Lembert sutures. Operation lasted about three-quarters of an hour. Only an ounce and a half of ether was required. Shock was moderate, from which she rallied well.

With the exception of some diarrhœa, the patient was very comfortable the next day. Two days later, she was taking food without difficulty; there was no vomiting nor pain. Everything went on favorably for over a week, except that on the fifth day the temperature dropped to 96.4°. Wound united by first intention, and the sutures were removed on the seventh day. There was no tenderness, nor distention, nor other local signs of peritonitis at this time. On the ninth day pain in the belly came on with vomiting and tympanitis. The wound opened, and its edges became dark and sloughing. Exploration revealed extensive adhesions everywhere among the intestines, but no pus nor fæces could be found. The urine, which was examined and reported normal when she entered the hospital, now contained albumen, and hyaline and granular casts.

The patient gradually sank, and died eleven days after the operation, from peritonitis and nephritis. No autopsy was made, and hence the condition of the intestinal wound is not known.

This is the third case of intestinal resection done by the writer during the past few years. The first patient lived a week, and died from peritonitis. The second patient, a feeble old woman, recovered in a surprisingly short time, but died several months later from an operation for the removal of an ovarian tumor. She had no further intestinal trouble, and her death was due to shock and exhaustion consequent upon a laparotomy of moderate severity. No autopsy could be obtained in any of these cases; hence we are in the dark as to the exact condition of the intestinal suture.

Strangulated Inguinal Hernia. Patient in collapse when brought to hospital. Quick operation: Recovery.

Mr. M., aged fifty-six years, entered the City Hospital April 23, 1893, in a state of collapse. An inguinal hernia had existed upon the left side a year, for which he had never worn a truss. It had been strangulated a week, and profuse stercoraceous vomiting had persisted for three days. The extremities were cold; he was pulseless at the wrist, and had hiccough. The superficial arteries were calcified. Urine contained albumen, and hyaline and granular casts.

The patient was surrounded with heaters, well covered up, and brandy freely injected under the skin. A very little ether was given, the sac was quickly opened, and the bowel found to be covered with a thick, dark layer of lymph, mottled in places, threatening sphacelus. The constriction was divided, the bowel placed just inside the wound, which was packed with baked gauze. This was done to give exit to the intestinal contents, should occasion require it. The operation lasted but a very short time.

The patient rallied very slowly from his most desperate condition. The vomiting persisted for five days, gradually diminishing in amount and frequency. He was fed and stimulated by the mouth and rectum. At the end of a week the hiccough and vomiting had ceased, and there seemed a chance for his recovery. The wound was closed with sutures in five days after the operation, and it was healed completely in five weeks. Although the rupture returned before the

patient left the hospital, yet the rings were so large that strangulation in the future would seem to be impossible. He was ordered a truss, and told to wear it during the remainder of his life.

This man had wonderful powers of endurance and of recuperation, yet it may fairly be claimed that his recovery was due in no small degree to the mode of treatment which was adopted. The method was fully described in a paper presented to this Society ten years ago,[2] and consists of the following essentials:

Just enough ether is given to control the cutaneous sensation; scarcely more than the primary effects are requisite. In other words, the anæsthesia is light and frequently interrupted, the patient at no time being profoundly unconscious. The operation is best performed in the warm bed, the body being well covered, surrounded by hot bottles, kept dry, and moved as little as is necessary. The operation is to be done as quickly as possible, and no time is to be wasted in trifling refinements of technique. It goes without saying, that hæmorrhage must be controlled in the speediest manner compatible with the patient's safety. The sooner the necessary dressings are applied, and the person is arranged in his bed, and left alone with his nurse, the better are his chances for recovery. In three cases of gangrenous hernia operated upon by me, while the patient was in a state of marked collapse, I have deliberately opened the bowel, as one would open an ordinary superficial abscess, with one stroke of the knife, and have then divided the constriction by carrying the herniotome into the lumen of the intestine. This very unscientific method was adopted rather than to risk a long, tedious, and hence dangerous dissection in a mass of gangrenous and extensively infiltrated tissues, in which all of the ordinary anatomical landmarks were obliterated by the prolonged morbid processes. Two of these patients lived a fortnight. The third, an old man at the time of the operation, is alive and well, and is earning his living as a printer, now, several years after his serious illness.

This method of relieving strangulation is manifestly justifiable only under the most desperate conditions, such as those which have been described above, and under no other circumstances should it be resorted to, or thought of.

A case of very large omental hernia is here alluded to because of an unusual complication, namely, hæmorrhage. A man, twenty-five years of age, had never worn a truss upon a rupture in his right inguinal region, although it had troubled him for ten years. Had been operated upon for strangulation some years ago. Present symptoms, vomiting and pain, were of twenty-four hours' duration.

On opening the sac, about six inches of small intestine was found entangled in a large mass of adherent omentum. The bowel was readily returned after a free division of the constriction had been made, but the omentum was returned with great difficulty, owing to the numerous firm adhesions. While dividing some of these dense bands upon the inner side of the mass, an enormous omental vein was wounded, giving rise to a profuse hæmorrhage. As is frequently the case in wounds of large veins, it was impossible to control the bleeding with forceps. It was readily done, however, by packing the wound with sterilized gauze, which was removed piecemeal from the third to the fifth day, without recurrence of the bleeding. The patient made a good recovery in five weeks, and left the hospital wearing a firm pad and spica bandage.

Another case of strangulated hernia lately operated upon is of interest by reason of the obscurity of the origin of the symptoms. A young man was sent to the hospital by Dr. Boland, with the appearance of approaching collapse; general abdominal pain, tenderness and distention, fæcal vomiting of three days' duration, cool extremities, congested skin, and pinched features. There was evidently general peritonitis. For fifteen years he had had a rupture in the left inguinal region, which came and went readily according to the position of the body. Had never worn a truss. Present symptoms began five days before entrance to the hospital.

In the left inguinal region was a soft, painless tumor the size of an almond. It was not tender, nor was the skin reddened or indurated. The bunch could be moved about in all directions, and felt very much like a lymphatic gland. The question naturally arose as to the relation of this apparently insignificant tumor, and the grave symptoms, as related above.

An exploratory incision showed that the little bunch was a mixed hernia, composed of omentum, in which was entangled about an inch and a half of small intestine. The constriction, which was very tight, firm, and located high above the internal ring, was freely divided with the herniotome, and the contents of the sac were easily returned to their proper place.

The patient rallied slowly, and the convalescence was tedious, owing in part to an attack of septicæmia, as indicated by chills, fever, parotitis, and a sloughing condition of the wound. He recovered, and left the hospital in seven weeks, wearing a pad and bandage.

This case leads me to mention three others in which I have been called upon to operate, for the reason that the symptoms did not subside after the hernia had apparently been reduced. The first case was that of a middle-aged man, with a strangulated hernia in the right groin of about twenty-four hours' duration. It was reduced by his physician at night without undue force. Upon the following morning, the symptoms not having subsided in the least, the abdomen was opened just above the inguinal canal upon the right side. A knuckle of small intestine was found to be tightly constricted by the neck of the sac, situated above the internal ring, and freely movable. It had been reduced *en bloc*, but there were no signs of injury from the taxis. The intestine, while deeply congested, showed no indications of mortification or other lesion. The constriction was divided from above. The patient died from shock and exhaustion in about twenty-four hours.

A patient of Dr. Goss, an elderly man, had a strangulated inguinal hernia upon the right side. Moderate taxis applied by the patient himself caused the tumor to disappear several hours before summoning the physician; but the symptoms, pain, restlessness and vomiting, persisted. At the end of twelve hours an ordinary herniotomy was done. The constriction was reached with difficulty by carrying the finger high up through the canal and rings. It was divided, the bowel brought down, examined, and found to be in good condition. Union by first intention followed, and the patient made a quick recovery.

The third case was that of an old man, seen with Drs. Reed and Gavin. Shock, prostration and vomiting were urgent. An operation revealed a tight con-

[2] Vide Boston Medical and Surgical Journal, October, 1883.

striction high above the internal ring. The bowel was in fair condition, but the patient died in about twenty-four hours.

It is a noticeable fact, that the constricting band in these four cases was located above the internal inguinal ring, and with its contents was very movable, thereby explaining the ready disappearance of the hernia. These cases serve to emphasize the fact, that the only reliable indication of the success of taxis, is a marked change in the symptoms for the better. If they do not show unmistakable signs of improvement within twelve hours after an apparent reduction, the probabilities are, that the obstruction is not removed, and that operative measures are called for to ascertain beyond a doubt the exact condition of the structures involved. Intestinal obstruction, complete enough to produce vomiting, cannot be relieved too early. The prostration resulting from this calamity is always serious, oftentimes insidious, and not infrequently deceiving the surgeon as to its severity. The recuperative powers of the patient are often reduced to a much lower state than are indicated by his general appearance and symptoms. Hence the danger of delay. The risks of an operation are as nothing compared to the perils of a strangulated bowel. The sooner obstruction is relieved, the safer the patient.

In conclusion, I can only say what has already been better said many times before in relation to the treatment of strangulated hernia. If the symptoms are urgent, waste little time upon efforts at taxis, as they seldom succeed under these circumstances. The tissues, already more or less damaged, are rendered still more incapable of repair by the manipulations. While the application of cold, and pressure by means of weight and elastic bandages, raising the foot of the bed, etc., may succeed occasionally in reducing a rupture, yet, as a rule, more harm than good follows their use, owing to the difficulty in making a proper selection of cases, and also to the fact that valuable time is lost in making the experiments. Be chary in the use of opiates before and after taxis, and after operation, lest they mask the symptoms, and lull the attendant's suspicion, until the patient is beyond relief.

If a rupture, real or suspected, is accompanied by vomiting, herniotomy, as a rule, is not only justifiable, but it is demanded. Operate early. If the patient be not in good general condition, operate quickly, and avoid shock and prostration. In desperate cases do as little as possible beyond dividing the stricture at the primary operation, and complete the work later, when the patient has rallied sufficiently to justify it. If in doubt as to the reparative powers of the damaged tissues, pack the wound with sterilized gauze for a few days, or until the point has been decided by the natural course of events.

Husband the patient's resources in every possible way. Save time, and avoid shock. Preserve the animal heat, and keep the body dry. Disturb the patient as little as possible by moving. Avoid all unnecessary manipulations inside the peritoneal cavity, as they increase shock. Stimulate and nourish by the skin and rectum. Let the anæsthesia be light, and often suspended. And, finally, never lose sight of the fact that the keystone to the operation is a thorough division of the constricting band.

THE editor of the Russian *Grazhdanin* has been sentenced to ten days' imprisonment for defamation of military surgeons.

ON CERTAIN DANGERS ATTENDING THE USE OF ATROPINE, AND THE EMPLOYMENT OF A NEW MYDRIATIC.[1]

BY HASKET DERBY, M.D.

IN his recent text-book of ophthalmology Professor Fuchs uses the following language:

"The mydriatics may bring about an inflammatory attack (of glaucoma) in an eye predisposed to the same; and this is true not only of the powerful mydriatics, like atropine, but also of homatropine and even of cocaine.

It is therefore better to always inquire into a possible predisposition to glaucoma, before applying a mydriatic in the case of an elderly person."[2]

Priestley Smith includes duboisine in the above list.

Attention was first called to the unfavorable effect of mydriatics, or rather of belladonna, in acute glaucoma, by Mr. Wharton Jones, more that a generation ago.[3] I am not aware however that he alluded to the possibility of its favoring the production of increased pressure where this might be impending. I believe the two cases I reported to the American Ophthalmological Society in 1868,[4] one occurring in my own practice and the other in that of the late Dr. Althof, of New York, to have been the first published instances of glaucoma supervening directly on the instillation of atropine. At about the same time, although the fact subsequently came to my knowledge, von Graefe published in his *Archiv*[5] a short observation bearing on this same point; giving no cases, but stating his own experience, and advising the avoidance of the instillation of atropine in chronic glaucoma.

These views met at first with little favor, but they are now generally entertained. Probably the most accepted theory of the causation, or rather acceleration, of the outbreak of glaucoma through mydriatics is that they interpose an obstacle to filtration by pressing the thickened, peripheric portion of the iris from the ciliary processes, towards and against the cornea, thus increasing the narrowing of the filtration angle. "When the filtration angle is already dangerously narrow" says Priestley Smith in his recent excellent treatise on the pathology and treatment of glaucoma (p. 132), "the thickening of the iris base, which accompanies dilatation of the pupil, may suffice to complete the blockade."

If this view be true it must apply to all mydriatics without exception, and it is in fact known that all those in common use have accelerated the onset of glaucoma. In consequence of this we hesitate to employ them on patients who have passed middle age, at any rate for the investigation of refraction, certainly in no case to use them without some preliminary examination.

For therapeutic purposes atropine is undoubtedly the mydriatic in most general use. While its benefits are unquestioned, the occasional disadvantages it entails are by no means to be lost sight of. I shall never forget once instilling two or three drops of a half-percent. solution in the eyes of a boy of thirteen, of seeing him after the lapse of an hour stagger as he left the office, and of being sent for the evening of that day, to find him with a flushed face, great dryness of the fauces, and possessed by hallucinations, all of these symptoms passing away in the course of the night.

[1] Read before the New England Ophthalmological Society, December 5, 1893.
[2] Lehrbuch der Augenheilkunde, S. 370.
[3] Medical Times and Gazette, vol. i, pp. 111, 112.
[4] Transactions for 1868, p. 35.
[5] A. F. O., Bd. xiv, Abth. ii, S. 117; see also A. F. O., Bd. xv, Abth. iii, S. 123, note.

In addition to what has already been detailed, atropine is known in certain cases to cause slight general excitement, with increased frequency of the pulse; a bitter taste in the mouth; a peculiar form of conjunctivitis, where its use has been long continued; and not to be at all borne by certain individuals, who manifest a peculiar susceptibility to its influence.

The discovery of a mydriatic free from the above dangers and inconveniences, would mark a distinct advance in therapeutics, and facilitate examinations of the eye, whether of refraction or for purposes of exploration. Such an agent, it is claimed, has been found in scopolamin, an alkaloid furnished by the roots of the scopolia atropoides. It is contained, with hyoscin, in the hyoscyamus niger or henbane, but differs materially from hyoscin in a chemical point of view.

A recent article published by Raehlmann (Kl. Monatsblätter für Augenheilkunde, Jahrg, XXXI, S. 59) drew attention to this new mydriatic. It is more active than atropine, being used in about one-fifth the strength of that agent, a solution of from one to two parts to a thousand being the one usually employed. It acts with efficiency, its first effect on the pupil being in most of my cases visible at the end of five or six minutes, and full dilatation secured in from twenty to twenty-five minutes. Mydriasis lasts several days, but seems to be less prolonged than that due to atropine. Dr. H. H. Haskell, ophthalmic interne at the Massachusetts Charitable Eye and Ear Infirmary, has had the kindness to observe the results of the application of a one-fifth-per-cent. solution of scopolamin in a series of seven cases, and the figures are here appended. The first column gives the age, the second the number of minutes that elapsed before any effect was perceptible, the third the minutes required for maximum dilatation, and the last the number of hours that elapsed before the pupil became again normal.

9	8	40	51
8	16	35	60
17	10	21	72
12	9	30	80
9	10	25	60
20	10	20	80
12	12	40	90

Unlike atropine the effect of scopolamin on the cerebral cortex is to paralyze rather than to irritate, and the frequency of the pulse is not increased but diminished. This has been proved by experiments on animals. It is said to cause no nervous excitability, and not to affect appetite.

The advantages claimed by Raehlmann for scopolamin over atropine are as follows:

(1) Dryness of the throat occurs only after excessive use.

(2) Its application can be prolonged without causing irritation, and it may even be substituted for atropine when the latter is no longer borne.

(3) It is better adapted to the treatment of certain inflammatory affections, particularly those connected with hypopyon, than is atropine.

(4) It causes no increase of intraocular pressure, has even been used with relief to pain in cases of acute glaucoma.

If experience corroborates these facts, the new remedy may well supersede atropine. The last advantage claimed is one of the utmost importance. If we have indeed, in the case of scopolamin, a mydriatic which is unlikely to cause an increase of intraocular pressure, in an eye predisposed to the same, the theory of the action of this class of agents must be revised. In that case we must abandon the supposition that excretion is checked by crowding the iris up against the filtration angle, and recur to the former hypothesis that atropine diminishes filtration by contracting the vessels, thus thickening their walls and diminishing transudation.

Raehlmann's article is based on observations made with scopolamin hydrochlorate. For four weeks past I have used the hydrobromate, the only form of scopolamin I have been able to procure, and which was furnished me by T. Metcalf & Co. As far as I can judge with so limited an experience the effects are similar. Since commencing with it I have used no atropine.

Clinical Department.

REMARKABLE EFFECTS OF DIVULSION OF THE URETHRA.[1]

BY JOHN HOMANS, M.D.,
Surgeon to the Massachusetts General Hospital.

IT is very seldom that a surgeon has an opportunity to examine the urethra immediately after divulsion. Such an opportunity has lately been afforded me, and I bring the specimen for the Society to see.

The patient died from the combined effect of hæmorrhage into the cerebellum, hæmorrhage into the bowel, tuberculosis of the mesenteric glands, abscesses in the prostate, and the etherization and operation done on the day of his death. The case was an extremely interesting one in every aspect, but more particularly in its pathological appearances.

The patient was a single man, twenty-five years old, who had led an irregular but very active life for several years, and had taken no care of himself. Some abscesses in the perineum and scrotum had either opened spontaneously or had been opened about a year before his death; and this fact together with a history of gonorrhœa and occasional purulent discharge from the urethra, had given rise to the belief that a tight stricture existed, and that the urethra had ruptured behind it, causing abscesses and sinuses.

When I saw the patient early in October, 1893, he was quite emaciated and very pale. He was extremely unwilling to have any instrument passed, and it was with the greatest tact that I was able to persuade him to let me pass a small one. I tried several, and nearly all of them brought up in false passages, only one went through. Finding these false passages and seeing the sinuses old and healed, only confirmed me in my belief that there was a tight stricture. At the same time the young man said that he had no trouble in passing water, but his attending physician said that urine came at times through the sinuses. In this he was mistaken. There was an acquired phymosis with much thickening of the prepuce, and considerable thin pus between the prepuce and the glans. If I could have persuaded the patient to let me pass a medium-sized instrument, my belief in the existence of any very narrow stricture would have been dispelled.

The patient lived six days after I first saw him. His pulse was always weak, and he developed a most

[1] Read before the Boston Society for Medical Improvement, November 13, 1893.

intense headache. The pain was terrific, absolutely unbearable, and was accompanied by a spasmodic twitching of both sterno-cleido mastoids. His favorite attitude was with his hands folded behind his head, or with his head and shoulders bent forward, lying curled up with his back very much rounded.

After etherization, I laid open the sinuses in the scrotum, perineum and buttocks. Two of them were symmetrical and were found to spread out beneath the skin, as tubercular abscesses do. None of the sinuses communicated with the urethra; they were curetted and packed with iodoform gauze. A small bougie was then passed into the bladder, and the urethra divulsed with Bigelow's divulsor. The points of most resistance were near the glans and in the membranous portion of the urethra. There was no bleeding. A large-sized elastic catheter was easily passed into the bladder, and was tied in and connected by a rubber tube with a bottle. But little urine was secreted after the operation. Eight hours later the patient died. The autopsy showed clearly the causes of the pallor, weakness and headache and the effects of the divulsion.

Dr. Whitney reports that the calvaria was thin and its inner ridges and markings extremely prominent, recalling the appearances in the skulls of very old people. In the right hemisphere of the cerebellum was an area of red softening occupying the central portion for its entire thickness. The area was rather pyramidal in shape, and its greatest area was about one inch square. The blood was dark red in color, and was evidently of quite recent origin (probably within a week). About six inches above the ileo-cæcal valve was an irregular ulceration, about three-quarters of an inch in diameter, which was well into the muscular coat. The lymphatics were distended with an opaque cheesy material. The glands at the root of the mesentery were enlarged from the size of a pea to that of an orange, and on section contained abundant creamy pus with cheesy periphery. The intestine below the ulcer was filled with dark tarry blood. In the prostatic portion of the urethra were several holes, capable of admitting a sound, which passed into the prostate and from which yellow pus could be squeezed. The prostate was completely riddled with abscess formations. To sum up: Red softening of the cerebellum; tuberculosis of the mesenteric glands and tubercular ulcer of the intestine; abscesses in the prostate and about the perineum and anus; recent rupture of the urethra from divulsion. Any other changes in the viscera, if present, were masked by the fluid injected by the undertaker.

The appearances of the urethra in the recent state were as follows: At a point two and a half inches from the meatus, and extending two and five-eighths inches downwards, is a clean cut, or tear, parallel with the axis of the urethra. This cut or tear (linear) extends through the mucous membrane and through the submucous tissue, an eighth of an inch in depth. In the alcoholic specimen you see at the side of this cut, a shred of membrane (possibly mucous membrane, probably not), but I am not sure that this was there when the autopsy was made; it may have been made in the slitting open the urethra. In the membranous portion is a clean cut or tear on the floor of the urethra, one inch long and extending to the prostatic urethra, but not into it. The prostatic urethra and the prostate gland are riddled with holes and abscesses of long standing. At first sight this seemed to me rather too extensive a splitting, as the result of the passage of the divulsors, but the more I have studied it and thought about it, the more I am convinced that it was a most excellent result and could not have been obtained in any other way. There was absolutely no hæmorrhage, nor an ecchymosis. The cuts were as straight and clean as if made by a knife and not ragged and there was no bleeding as there would have been with a knife. There were two strictures, one in the pendulous portion of the urethra, the tightest, and one in the membranous portion. If the urethratome had been used there would have been considerable bleeding and the division of the stricture would have been no more satisfactory, though the incision in the urethra would probably have been shorter.

On the whole, I regard this linear splitting of the urethra, without hæmorrhage, almost the ideal treatment for stricture of the urethra, and if divulsion often effects such a bloodless and thorough division, I regard it as perhaps the best method of treating a stricture, at least a deep-seated one.

ŒSOPHAGOTOMY, WITH HEALING BY FIRST INTENTION.[1]

BY ABNER POST, M.D.

THE following case of œsophagotomy presents some features of interest, especially in its recovery. The patient was a little girl twelve years of age who on her birthday received as a present a bright new silver twenty-five cent piece, which was a larger sum of money than she had had at her own disposal before. In her excitement she put it in her mouth, and accidentally swallowed it. For the first day after the accident she was unable to swallow anything. On the second day the coin evidently shifted, and she was able to swallow liquids. At the end of the second day she was brought to the hospital. I saw her late the next forenoon. She was evidently in pain; and when I approached her, she screamed, and grasped her throat by both hands. It was impossible even to touch her without anæsthesia, and the next day was appointed for the operation. The next morning she persuaded her nurse that she was able to swallow, that the coin had passed down; and I was so informed, so that I did not see her till late that forenoon, when I asked to see her swallow. She took but a single swallow, grabbed the throat with both hands, and made that characteristic painful deglutition which is so well-known with difficulty in the œsophagus. I was obliged again to postpone the operation until the next day, which was the fifth since she swallowed the coin.

When she was etherized an attempt was made with the coin-catcher to catch and extract the coin. I succeeded in locating it, but did not catch the coin. The bristle probang was then passed; it came up showing that the bristles had spread irregularly, and that the portion of the probang where the bristles had been thinnest had caught in the coin. The instrument was passed again, but no force that I dared apply would stir the coin. The probang came up with a little blood, and it was evident that œsophagotomy was necessary. The child being already on the table, the head turned to the right exposing the left side, which was made prominent by placing a rolled sheet beneath the

[1] Read before the Boston Society for Medical Improvement, November 13, 1893.

neck, it was then possible to feel the coin from the outside at a point midway between the cricoid cartilage and the sternum. An incision was made along the anterior border of the sterno-mastoid which was loosened, and with the vessels beneath was pulled outward with a spatula; the depressors of the hyoid, which were pretty wide, were loosened at the edges and pulled inward. The sterno-mastoid had been pulled to the outside, the trachea gently pulled to the inside, and the omohyoid depressed, so that there were three spatulæ, one pulling in, one out and one down. Very little manipulation with the trachea in the region of the œsophagus liberated a few bubbles of gas, which were explained later by seeing that the coin had begun to penetrate the walls of the œsophagus so that it was just visible. The œsophagus was then incised by a small tenotome tracing the position of the coin, which could be made out very plainly. The coin was then seized with forceps and extracted. The coin was firmly grasped by the œsophagus, firmly held on two sides, if one may speak in that way of a circular object, and when it was extracted the median line was thoroughly discolored by sulphuretted hydrogen, while the two parts on the sides that had been grasped by the œsophagus were left comparatively bright. There had been practically no loss of blood. The record places the loss of blood at less than one-half drachm. The parts were then allowed to resume their natural positions, and the external wound was closed at the top and bottom, leaving the middle portion freely open, and the child was sent back to bed. There was no vomiting.

When I visited the ward the next day the child was up, dressed and playing about the ward. To my surprise I found that she had already been fed with cracker soaked in milk, and that none of the food had appeared through the wound. From that day until she was discharged there was absolutely no leaking. It was, then, an œsophagotomy which closed by first intention. So far as I have been able to find, this is the only case on record in which so successful an issue has been reached.

In trying to explain this good fortune, I think it lies in great measure with the child. She presented a neck which seemed to have been formed by nature for the operation. It was a little long, entirely devoid of fat, and the connective tissue very slight, so that the muscles were separated with a minimum of traumatism. No vessels were cut, so there was no blood to prevent immediate union.

I think this must be the only œsophagotomy that has been done with simple aseptic precautions. So far as I know, after the skin was cleansed there was nothing that should be called antiseptic that entered the wound. The instruments were sterilized by heat; the dressing put on afterwards was gauze that had been baked.

In the majority of cases the wound does not close under two weeks. This child must be one of the youngest on whom the operation has been performed. Dr. Leroy McLean, of Troy, N. Y., reports the case of a child of sixteen months. In that case the recovery is said to have been "rapid and complete." Dr. George W. Gay has operated on a child of three and a half years.

The little girl is here to-night. She has only the scar to show. She is good enough to let us see how slight a scar can result from so serious an operation. She now eats food of all descriptions without difficulty.

PREGNANCY IN THE LEFT HORN OF THE UTERUS, SIMULATING EXTRA-UTERINE PREGNANCY: LAPAROTOMY.

BY F. W. JOHNSON, M.D.,
Gynecologist at the Carney and St. Elizabeth Hospitals, Boston.

Some months ago I saw in consultation Mrs. M., twenty-two years of age. Menstruation (which had always been regular) had been absent for three months. During this time she had had more or less pain in the left ovarian region. At times the pain was sharp and cutting, causing her to wince and cry out. I saw her about 12 M. The family physician was called the evening before. He got a history of flowing of only a few hours' duration. "Nothing" had passed from the vagina. Great pain, at times cutting like a knife, was complained of in the left ovarian region. There was marked sensitiveness on pressure over the left ovarian region. Patient was restless, and had an anxious expression. Pulse, 120; temperature, 101°. There had been no chill. Ether was administered, and nothing was detected by the finger inside the uterus. He told her it was probably a case of extra-uterine pregnancy. When I saw her the above-mentioned symptoms were present. She had flowed some during the night and forenoon, but had passed nothing except blood from the vagina. She was pale and restless, and vomiting was present. The abdomen was distended, and so sensitive that palpation revealed nothing. Vaginal examination revealed an enlarged uterus, with an ill-defined, sensitive swelling extending from the left horn. Pulse, 130; temperature, 103°. There had been no chill. Morphine had been necessary to relieve the severe pain.

At 2.30 the abdomen was opened. Nothing except an enlarged uterus, with the left horn enlarged, and an enlargement of the left tube close by the uterus was found. With the sharp curette, a quantity of placental tissue was removed from the left horn.

Convalescence was uneventful, and she was discharged in four weeks.

She is now four months pregnant. The symptoms in this case pointing to extra-uterine pregnancy were certainly as well marked as in some of the cases where I have removed a fœtus either from the tube or the abdominal cavity.

Medical Progress.

RECENT PROGRESS IN OPHTHALMOLOGY.

BY MYLES STANDISH, M.D., BOSTON.

ANATOMICAL CHANGES UNDERLYING OCULAR DISTURBANCES OF CEREBRAL SYPHILIS.

Uhthoff[1] reports the anatomical changes of the eyes and optic nerves of 17 cases of cerebral syphilis which resulted fatally in the Berlin hospitals.

In two cases there were intra-ocular changes; in one, irido-choroiditis, with very noticeable vascular changes (peri-vasculitis) in the retina; in the other, a gummatous formation in the iris. The optic papillæ, nerves, chiasma and tracts were involved in 14 of the 17 cases; in several the anatomical changes found *post-mortem* had not given rise to any disturbances of function.

[1] Bericht über die 22te versam. der Ophthal. Gesell., Heidelberg, 1892.

"Choked discs" were found in three cases (once unilateral); optic neuritis in two; simple atrophy of the papillæ in three. In six cases no ophthalmoscopic changes were discovered.

In the orbital portion of the optic nerve were found perineural changes varying from simple hydrops of the sheath to an intense descending perineuritis, and interstitial neuritis with secondary atrophy; also simple descending atrophy. The intracranial portion of the optic nerve showed pronounced gummatous degeneration, severe perineuritis and slight perineuritic changes. The chiasma was affected in a comparatively large number of cases. In one case the optic tract in its entire length was converted into a gummatous mass. In eight of the 17 cases there was third-nerve affection, twice bilateral. The sixth nerve was paralyzed in two cases. The trigeminal nerve was involved in three cases, in one of which neuro-paralytic keratitis occurred.

THE OPTICAL TREATMENT OF CONICAL CORNEA.

Mackay[2] estimates the refraction of the apex or any other more desirable portion of the cone in conical cornea by means of retinoscopy done through stenopaic discs with central circular apertures of three to five millimetres, using the disc with the smallest aperture, through which the glow can be recognized and its motion followed. He cites two cases. In the first case, the best glass selected by the trial with test types and lenses alone resulted in R. — 3.00 D., sph.; L. — 9.00 D., sph.; R. V. $= \frac{6}{24}$ parts; and L. V., $= \frac{6}{36}$. By retinoscopy through a three millimetre aperture, the refraction of the summit of the cone proved to be R. — 13 D., sph. ⌒ — 6 D. cyl. axis hor.; L. — 15 D., sph. ⌒ — 8 D., cyl. axis 130°. Vision with practically these glasses, through the same opening, proved to be R. V. $= \frac{6}{12}$, L. V. $= \frac{6}{18}$; and J.1 from 8 to 20 inches R., J.2 from 2 to 10 inches L. The interpupillary distance was carefully measured, and a pair of spectacles prescribed having the posterior surface coated with an opaque black varnish, leaving clear central areas of two millimetres in diameter. With these she eventually obtained four letters of $\frac{6}{9}$ with the left eye, and was most grateful. In the second case, with an opaque summit, he was able by the same method to determine the existence of nearly twelve dioptres of myopic astigmatism near the visual axis, and to improve vision from "fingers at one metre" to $\frac{6}{36}$.

IRITIS AS A SYMPTOM OF BRIGHT'S DISEASE.

Schapringer[3] reports a case of iritis which he deems to have been due to a nephritis from which the patient suffered. The eyeballs were extremely sensitive to the touch; there was intense photophobia, well-marked œdema of the conjunctiva, but not associated with any congestion of that membrane. The cornea was clear, but the aqueous humor slightly turbid. No precipitate on the posterior wall of the cornea. The iris was discolored and dull, and the pupil contracted. The optic disc was slightly swollen; its outlines were indistinct. The retinal veins were enlarged and tortuous. In the region of the yellow spot there was a faint indication of white discoloration in two or three spots. Under treatment the eyes improved, and were well in six days. The white spots in the macula region disappeared. The patient died in about six weeks' time.

[2] Ophthalmic Review, November, 1893.
[3] American Journal of Ophthalmology, July, 1893.

WOLFE'S OPERATION.

Weeks,[4] in the report of the restoration of the eyelids in a case of severe burn, presents a tabulated report of 37 cases collected by him of the transplantation of skin without a pedicle (Wolfe's operation) for the restoration of lost tissue in the eyelid; from which it appears there was no sloughing in fourteen cases, or 37.8 per cent. Partial sloughing occurred in eight cases, or 40.6 per cent. Complete sloughing occurred in eight cases, or 21.6 per cent. The final result was good in 18 cases, or 48.6 per cent. Sutures were employed in 23 cases; of these cases there was partial or complete sloughing in 18, or 78.25 per cent.

No sutures were employed in 14 cases; of these, partial or complete sloughing occurred in five cases, or 38.5 per cent. No sloughing occurred in nine cases, or 61.5 per cent. The maximum shrinkage, where reported, was reached in four months (four cases). The amount of shrinkage is reported to range from 50 to 80 per cent.

OPHTHALMOMETRY.

Lautenbach,[5] in an article upon ophthalmometry, as to what the Javal instrument will do and what it will not do, comes to the following conclusions: The ophthalmometer will not give the refraction, nor will it give the total astigmatism except when this is confined to the cornea; or any knowledge as to whether there is or is not lenticular astigmatism. It will give the axis and degree of astigmatism when this is corneal; practically he finds that it gives the axis in 88 per cent.; and the amount of the astigmatism in 45 per cent. It reveals a knowledge of diseased conditions of the eyeball when the disease is of such a nature as to interfere with the nutrition of the cornea or increases or decreases the ocular tension. It will, in connection with other methods, enable a calculation to be made of the lenticular refraction and astigmatism as well as the depth of the eyeball.

SIMPLIFIED DIAGNOSIS OF OCULAR PARALYSIS.

Wegmann,[6] in an article upon the differential diagnosis of paralysis affecting a single extrinsic muscle of the eye, formulates the following rules:

Rule 1. — Paralytic squint manifests itself in the direction of the affected muscle.

That is to say, covering one eye with a red glass in order to differentiate the images, if the test object, the light of a candle, is carried to the right and the images then separate, the affected muscle would be either the right external rectus or the left internal rectus.

Rule 2. — The paralysis is to be found in the muscle of the eye whose image keeps in advance during the test movement; the image lagging behind belongs to the sound eye.

Rule 3. — In case of paralysis, the recti of the vertical meridians cause crossed diplopia, the obliqui homonymous diplopia.

After it has been thus determined whether the paralysis lies in the vertical recti or the oblique, it only remains to apply Rule 2 to determine the particular muscle affected.

Rule 4. — The faulty image will show such a position to the correct one as the eye would assume if

[4] New York Eye and Ear Infirmary Reports, January, 1893.
[5] Ophthalmic Record, December, 1893.
[6] Op. cit., February, 1893.

acted upon in a normal state by the muscle now paralyzed.

Rule 4 is not, as will be readily seen, necessary in order to simply make a diagnosis.

THE USE OF PRISMS.

Maddox,[7] gives the following maxims to be observed in prescribing prisms:

(1) Never order them unless indications for their use are unmistakable.

(2) Never order them simply on account of an anomaly in the behavior of the eyes under various tests, unless there is asthenopia, headache, tendency to diplopia, or giddiness, possibly relievable by them.

(3) Do not judge by one test, but by the "finger," "rod" and "card" tests, and if specially indicated by the relative convergence test also.

(4) Remember that considerable latent deviation in distant vision is more important than in near vision (though the latter is not to be ignored), and that moderate divergence in near vision is physiological.

(5) Always more or less under correct with prisms.

SYMPATHETIC OPHTHALMIA.

Schirmer,[8] in a comprehensive article of more than two hundred pages, has gone over the whole question in regard to sympathetic ophthalmia. The article is timely, as Deutschmann's theory is not nearly so fully accepted now as it was upon its first publication. Sympathetic inflammation is again differentiated from sympathetic irritation. The latter has two well-marked characteristics; there is no inflammation, and the influence of the injured eye stops short upon its enucleation.

In regard to the cause of sympathetic inflammation, our author divides all reported cases into two groups: (1) cases in which the tunics of the eye have not been perforated; (2) cases in which the tunics have been perforated. All the reported cases of the first group are gone over from whatever cause; and our author does not admit that the resulting sympathy of the second eye was anything more than sympathetic irritation in any case, with the exception of three cases of choroidal sarcoma with no perforation of the tunics but with a well-marked irido-cyclitis and its complications. In these cases Schirmer thinks the sympathetic inflammation probably due to the irido-cyclitis, which may have been due to endogenous infection through the presence of organisms in the system at large, and that the presence of a tumor provided specially favorable conditions for such an infection, and that a migration of the infection from one eye to the other was then reasonable. In considering the second group of cases, he shows that all the cases which excited a true sympathetic ophthalmia either had at the time or had in some past time had a uveitis, thus confirming the assertion of von Graefe that an inflammation of the uveal tract was a necessary factor in the production of all cases of sympathetic inflammation.

In most cases an interval of three weeks intervened between the injury and the inflammation of the sympathetic eye; in a few cases the interval was less than this by two or three days; and in two reported cases in which the interval was only fourteen days, our author considers the evidence not conclusive.

Inflammation has appeared in the second eye after the removal of the injured eye many times. It may occur at any time within three weeks; and in a few cases the interval has been even a few days longer. In two cases the eye was removed within a day or two after a severe injury, which caused a severe and somewhat persistent orbital cellulitis, and sympathetic inflammation began in one case after five weeks and in the other case after seven weeks, and was attributed in each case to the transmission of the infective inflammation from the orbital tissue. Two cases of sympathetic inflammation after evisceration are reported; but as the outbreak occurred within the period in which it may occur after enucleation, they do not prove that evisceration affords less safety than the entire removal of the eye.

An optico-ciliary neurotomy has been followed a considerable number of times by sympathetic ophthalmia. It is well established that reunion of the optic and of the ciliary nerves may take place, and even in one neurectomy in which the optic nerve to the extent of fifteen millimetres was removed, sympathetic inflammation began four weeks after the operation. It is probable, however, that the operation diminishes the risk to the other eye.

Our author advances the following facts as opposed to the theory that irritation through the nerves is the cause of sympathetic ophthalmia. Irido-cyclitis in the exciting eye is an essential condition. In the vast majority of cases this irido-cyclitis is of bacterial origin. Mechanical irritation of the ciliary nerves even associated with intense pain, as in glaucoma, does not induce the disease. A transmission of such a nerve influence along the optic nerve is inconceivable when, as is often the case, the nerves are completely atrophied. Finally, when a sympathetic irritation is produced by a nerve influence, it is cut short by enucleation.

The bacterial theory of the disease would account for all these facts. There is little reason, however, for supposing that the ordinary pyogenic coccus is the organism in question, and until we learn the tests for detecting the presence of the specific germ of this disease, we cannot definitely determine its method of transmission. A direct migration from one eye to the other seems probable.

For treatment our author formulates the following rules: An eye which is blind, and which is in a condition to excite sympathetic inflammation, should be removed, without waiting for any sign of sympathetic inflammation. If sympathetic inflammation has already broken out, the exciting eye, if blind, should be removed. If the sympathetic inflammation breaks out while the exciting eye retains some vision, the exciting eye should not be removed, for sometimes the second eye is entirely lost, while the exciting eye recovers more or less vision, and permanently retains vision. It is possible that both eyes may recover useful vision. From the clinical records the best treatment, aside from enucleation of the exciting eye, appears to be, sweating, mercurial inunction, warm compresses, darkness, atropine, and absolute rest of the eye. Operative interference to aid vision should be postponed as long as possible.

PURULENT OPHTHALMIA.

Hindl,[8] in an abstract of a paper upon purulent ophthalmia from the standpoint of its specific microbic cause, gives, among others, the following conclusions:

[7] Ophthalmic Review, February, 1893.
[8] Von Graef's Archiv., vol. xxxviii, Part 4, 1892.
[8] Ophthalmic Record, August, 1893.

(1) That all cases of purulent conjunctivitis are of microbic origin, and due to Neisser's gonococcus.

(2) That all cases originate from a gonorrhœal focus, by devious paths often, and not always traceable.

(3) That those parts of the conjunctival sac having a cylindrical, or a modified cylindrical epithelium, namely, the palpebral portions and that of the fornices, are the seats of election of the micro-organism.

(4) That the location of the gonococcus on the mucous membrane is first super-epithelial, then inter-epithelial, and still later sub-epithelial, and all combined.

(5) That its special habitat is within the pus cell, yet it is also extra-cellular as well as intra-epithelial.

(6) That the associated inflammation of the adjacent lid-tissues is due to the lymphatic absorption of the ptomaines of the microbe.

(7) That the compact stratified epithelial layer of the scleral conjunctiva and cornea is very resistant to the attack of the gonococcus.

(8) That ocular complications are due to pressure-necrosis, producing an infection atrium through which the streptococcus, and may be the staphylococcus, find ready entrance to tissues with greatly impaired physiological resistance and often rapidly destroy them; resulting in perforation of the cornea, intra-ocular infection and loss of the eye. This is a secondary infection.

(9) That the therapeutical indication is the mechanical removal or destruction of the gonococcus with its ptomaine, and that if this is done early and thoroughly in the weeping stage, the period of acute inflammation will be cut short and the ocular complications avoided.

(10) That it is well, in the incubative stage, even without positive evidence of a gonorrhœal origin, to regard with suspicion all cases of severe monocular catarrh, and especially so in the female, irrespective of age or condition, and to treat them as if due to the gonococcus. . . .

(11) That, of all local remedies, nitrate of silver is the most potent and at the same time, least irritating microbicide we possess. It prevents complications and can be used in sufficient strength to destroy the gonococci without risk of injury to intact ocular tissues and that solutions of greater strength than two per cent. are unnecessary.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JOHN T. BOWEN, M.D., SECRETARY.

REGULAR Meeting, Monday, November 13, 1893, the President, Dr. C. F. FOLSOM, in the chair.

DR. G. W. GAY read a paper on

SOME CASES OF STRANGULATED HERNIA.[1]

DR. D. W. CHEEVER: I understood the reader to say that opium after taxis, and previous to operation, might mask the symptoms. I should like to add to that, that its effect is even more dangerous and insidious, as concealing what we ought to do, if it is given, as it often is, by the physician before taxis is attempted. I have seen in private practice a good many patients who had strangulated hernia so comfortable under the influence of opium that they were not willing to be operated upon. Now this is a very serious state of things. The surgeon who is called to a case and finds capillary stasis on the surface of the abdomen, on the hands and about the nails, who finds the cool skin and flickering pulse, and that peculiar pinched look which is so characteristic of strangulation, who finds a bunch and has heard the history, cannot hesitate to think that operation is imperatively and immediately required. But the patient is very comfortable; his friends are naturally averse to having anything done; and all this may enforce a fatal delay. This is occasionally due to the subcutaneous injection of morphia, which has been given to such an extent as to mask those symptoms which are the only ones that can be appreciated by the patient and his friends. As an illustration of what quickness of operation will do, I should like to mention one case that I think was relieved perhaps as quickly as cases ever are. I take no special credit to myself for the occurrence, but I wish to put the credit where it belongs — upon the very sensible views of the patient, who was a woman of middle age. I saw her about two o'clock in the morning. She had been aware of the existence of a hernia, but had been perfectly well up to nine o'clock the evening before. At that time she went to the closet, had a somewhat constipated stool, during which she felt the hernia slip and come down. Pain, colic, nausea, etc., supervened immediately. She went to bed, and within a short time sent for assistance. She was in a lodging-house. I asked her if she was willing for me to telephone for an ambulance and take her to the hospital immediately. She said she was. The operation was over, and she was warm in bed and pretty well out of ether before daylight; and therefore the strangulation had existed only three or four hours before it was entirely relieved. Now the point I wish to make is this: that this was a feeble old woman with atheromatous vessels, rather a poor type of patient; the bowel was hardly showing the signs of constriction, and, of course, the operation was in every way the most favorable, and I never saw a case recover so quickly. Not the slightest bad symptom followed the operation, and she got about much sooner than any other person I ever saw. This shows what can be done under the best circumstances if people will submit.

I also wish to add my word to the very deceptive condition of these patients as to bearing any long operation. Instances have occurred a good many times in which, after prolonged etherization in these abdominal operations, the patient has suddenly given out, the heart and lungs have given out together, the bronchi become filled with mucus; sighing, gurgling respiration comes on; the operation is suspended, and death promptly follows. I have seen this occur several times. It is entirely unlooked for by one who has not seen it before. It is always unexpected and unlooked for by the etherizer unless he has had a large experience; and I would emphasize the point that the surgeon's mind must be almost as much on the anæsthetic as on the site of the operation itself. Now, in cases in which patients are considerably reduced, the question comes up whether we had not better allow them to go with an artificial anus, rather than do any prolonged operation. Most cases of artificial anus get

[1] See page 637 of the Journal.

well. I mean to say that they not only recover from the immediate danger of the strangulation and live, but they finally close the opening — at least that has been my experience with cases of artificial anus in the groin. I am aware that in cases in which colotomy has been done, what may be called rather ventral openings than openings low down in the groin, have been made, they often do not close, and require subsequent operation; but I think that a considerable percentage of cases of artificial anus that follow ruptured hernia finally close themselves; and in all times it has often been the case, when patients have had the bowel burst from mortification and abscess, that they have recovered finally, first going through the tedious stage of artificial anus. If this is so, I think we ought to be very careful about subjecting the patient to a formal resection of the bowel unless he is in a fresh and good state. If the patient is a strong man with a rupture down only a few hours, and if, on drawing out such a piece of intestine, you find it ecchymosed as result of taxis, if the bowel has lost its shiny appearance, there is a probability that these spots are going to slough. In such a case, if you have made up your mind that it is better not to return the bowel, it is wiser to draw it out, cut out the injured portion, make a clean resection, and such a patient will often get well. But if the strangulation has existed a long time, it is wiser sometimes to make an artificial anus than to resort to the other. Here comes in another very important point. The modern surgeon is very properly tempted to add the operation for a radical cure to the operation for strangulation. It is excellent if the patient can stand it; but it means prolonged handling and shock, and it seems to me that sometimes the combination of these two operations is not wise for the patient. In the treatment of these cases, it is a matter of judgment how much you think the patient can stand, how much he had better have done to him, how quickly it had better be done, and what are the best chances, not for curing the hernia, but for saving life.

In connection with this subject I should like to mention a case I had last week, not of hernia, but it has a bearing on methods of treatment. The patient was a strong man who was a hostler; a strong, powerful young man accustomed to be about horses, and who in an incautious moment got kicked. The horse kicked him across, not squarely, so that the corks and the mark of the shoe showed in the thigh. It was a glancing blow, and the thigh was not broken; but the foot in going across came pretty firmly upon the cord and the upper part of the scrotum, not the testis. The patient had a varicocele for which he had done nothing. The blow landed to a considerable extent over this varicocele. He immediately became sick and faint and nauseated. Ecchymosis of the abdomen took place, and he was brought to the hospital. He had not a previous history of hernia, but the appearance of a rupture caused at the moment existed; the upper part of the scrotum was black with the extravasation of blood running up to the inguinal ring; and as far as you could feel was an oblique mass as large as the thumb, the shape of a hernia; and of course it was impossible to say what it was inside. I told him, under the circumstances, he had better take ether, and have an incision made for the fear that he might have a hernia. It was entirely a hæmatoma from ruptured varicose veins which bled profusely, and had to be tied thoroughly, and the injury to these and the subsequent ligatures, I think, were the cause of sloughing of the testicle, which he will probably lose. This is the second case that I have seen of rupture of the spermatic veins. The other occurred to a delicate young lad who was playing ball, not foot-ball. Suddenly he turned pale, felt faint, and laid down and said something had given way about the inguinal canal. He was brought to my office in the evening. I examined him, and found a large swelling about the site of the ring. Then I insisted on an incision. Ruptured spermatic veins were found. There was no varicocele. The veins were ligatured, and he made a prompt recovery without any injury to the testis. Perhaps other gentlemen have met with these cases, but to me they were rare.

Dr. J. Homans: I think that the most embarrassing thing in these operations is to determine whether or not the intestine is viable. If it is not, you don't want to return it; if it is, of course you do. If you do not return it, you want to make up your mind whether to resect it, or to attach it to the ring, if it is not already sufficiently attached, and open it. Last summer I had a case of strangulated hernia in a lady about fifty years old, who was brought down from Rutland, Vermont. After opening the sac I examined the bowel and thought it had a fair chance of living. I returned it, and she got along very well for four or five days when the bowel gave way, and she died of peritonitis. In that case I made an error of judgment. The question of doing a radical operation for the cure of the hernia, at the same time that you relieve the strangulation, must be settled by the condition of the patient. If the patient is in excellent condition I think it might very well be attempted; if the patient is feeble the less handling you do the better. There are other strangulated hernias besides those of the bowel and omentum. As a general rule when I operate on a strangulated omental hernia I remove the omentum, — sometimes I have removed a number of pounds of it, particularly at the umbilicus. I saw a case of strangulated hernia at the hospital about a year ago, where the contents of the sac were exceptional. I was called in the night to see a woman about thirty-five years old who was four and a half months pregnant. She had a swelling in the left inguinal region over the crural ring which I took to be an ordinary femoral hernia. I opened the sac which contained a good deal of fluid. To my surprise there was no bowel, but there was the left Fallopian tube with its fimbriated extremity, and about four inches of the tube, strangulated. It was difficult to replace this tube after I had enlarged the opening a little because it was like a piece of string, perfectly flaccid and it doubled up. However, I did return it, sewed up the ring, and the external wound, and the woman recovered. She was confined at term without trouble. She had had symptoms of hernia off and on for a number of years, and my theory is that as the uterus grew in size it got up to such a point that the Fallopian tube came opposite to this hernial opening and dropped into it. If she had not been pregnant I think it very likely that the hernia which occurred would not have contained the Fallopian tube.

Dr. C. B. Porter: It seems to me that there is amongst the profession and amongst writers on the subject a certain amount of confusion with regard to the nomenclature of hernia, that is, calling an incar-

cerated or irreducible hernia, strangulated hernia. It was only a short time ago (in the Edinburgh *Journal*) I saw six cases of strangulated hernia reported. No detailed account was given, but it was said that they all reduced themselves under the internal administration of one-fourth of a grain of extract of belladonna. Evidently there was a mistake in nomenclature. Those were irreducible for the time being, but not strangulated hernia. In strangulated hernia there must be attending the hernia constitutional symptoms like nausea, vomiting, pain, colic, colic in the abdomen, pain at the seat of the constriction and generally constipation. Those in a more or less marked degree having existed a longer or shorter time, mark the condition or make the condition which is considered a strangulated hernia. Given those symptoms in a mild degree, palliative measures it seems to me might be considered perfectly proper, as the application of ice, putting the patient in the exaggerated Trendelenberg position. I have been able to reduce what were previously irreducible hernia, but not strangulated at the time, by putting the patient in the Trendelenberg position, and any one who has operated in that position knows that the tendency is for the intestines to fall towards the thorax and to drag upon the part which has become incarcerated in the internal ring and the patient is in the best possible position for the reduction. If the symptoms are marked, — marked vomiting, colic, — if they have existed any length of time I think any surgeon would hesitate to resort to palliative interference. The first thing is to relieve the constriction; then comes the question, and that is very important to decide, as to what shall be done with the contents of the sac. Those contents are either omentum or gut. If the omentum is strangulated it should be tied off in sections, that is, it should be dragged down until healthy omentum is found, tied off in sections, the gangrenous part cut away and the rest returned to the abdomen. If not gangrenous it may be returned without ligatures. There remains to determine whether or not the gut is viable, — the most important thing in connection with the operation. If there is any doubt I think the best method is to treat either by artificial anus, by excision or by retaining the gut in position, the constriction having been relieved. The constriction having been relieved, if it is doubtful what the condition of the gut is, it seems to me better that it should be packed in the wound and there retained until it is determined whether it is viable. If it is not viable, then an opening should be made into the gut and an artificial anus established, if the patient is not able to stand any further operation. In connection with the establishment of artificial anus I wish to mention some cases in contradistinction to what Dr. Cheever has said, "that the cases of artificial anus usually cure themselves." The first two cases of intestinal suture I ever did were in cases where there had resulted an artificial anus from inguinal hernia, which did not close. There was a constant discharge of fæces from the inguinal opening. The first case was that of an old woman. I relieved the intestine and brought it out until all the ulcerated part could be found. I used the Lembert suture; suture of the intestine was done, the intestine put back into the abdomen and complete recovery followed. Some years afterwards I saw the post-mortem specimen. The other case I saw in Lynn while there in consultation upon another case. I found a man in bed in a pool of fæces; he was reduced to the lowest extremity of flesh, and he said to me: "Dr. Porter, if there is any hope whatever of being cured I should like to have an operation." He said: "This is the first time that a glimmer of hope has been given." I said: "If I were in your place I should want to make the trial." He came to the hospital and a successful operation was done. With reference to the establishment of artificial anus, it must be remembered that the small intestine is more frequently the location of a hernia than the large, and that if the artificial anus is especially high up malnutrition follows and sooner or later some operation must be done, so that if the patient can endure the operation after dividing the stricture, it seems to me wise to do an exsection at that part; but an artificial anus should be established if the patient cannot endure exsection and enterorrhaphy. If the patient has strength to endure exsection of the diseased tissue and the enterorrhaphy, that is the next thing to consider; and in connection with that it is most important to be sure to get beyond the gangrenous portion. Kocher has removed five feet and Koeberle six feet of intestine successfully, so that the loss of a few inches more of intestine is not of moment, but it is of great moment to get to healthy tissue, that which has not been subjected to constriction at all and the intestine should be dragged down until that tissue is found, then enterorrhaphy made; and I believe an enterorrhaphy by continuous suture can be very rapidly made. I do not think that Senn's plates, Abbe's rings or Murphy's button for closing the intestine should be used under these circumstances, because the opening must be made much larger in order to reduce the intestine into the ring. The enterorrhaphy having been made, then comes the question as to what shall be done, whether the intestine shall be returned immediately into the abdomen or watched. There is a great difference of opinion with regard to what shall be done by those who have had the largest experience. Mickulicz says the suture having been made, the intestine should be dropped back into the wound in the groin, that no attempt should be made to close the wound in the groin, that if the intestinal suture is not competent, that then if the wound is open, if the intestine gives way the extravasation of fæces will be towards the wound and there is no danger. There are others who say that that should not be done, that the intestine should be kept outside and the suture watched, just as the intestine should be watched if it is a little doubtful, there being no constriction, and there is another German writer, Hahn, who says it is better to make an opening in middle line having sutured the intestine, leaving it there, close the inguinal opening and keep it there packed in gauze until sure of the suture and then return and close the abdominal wound. I believe it is better to keep the intestine in view if you are not sure of the viability of the intestine and the competency of the suture, otherwise it should be dropped in. I have never kept one outside yet. I have never had occasion to regret dropping an intestine back but once. That was a case of pyosalpinx where the intestines had been adherent to the tumor and torn in the operation. It should have been kept in the wound and an artificial anus established. It did not occur to me that the peritoneal coat was not intact. Where the patient is able to endure it after relieving the constriction I should say do a radical operation; if the patient cannot endure it an artificial anus should be established and left to be treated subsequently.

DR. BROKAW, of St. Louis: I am a little diffident about making remarks upon this subject. I am sorry I did not hear the beginning of the paper, but from the remarks that have been made I catch the drift of the discussion. Personally I speak from a rather limited experience. I have had more or less experience, however, in the matter of intestinal surgery. One or two thoughts occur to me. One remark by Dr. Porter in regard to the matter of aid sutures particularly interests me. When Senn commenced his work in experimental intestinal surgery which had every promise of electrifying the surgical world, I was at work on an intestinal suture, the ring which I devised being the segmented rubber ring filled with catgut. My idea was that the absorption of catgut would take place and that the segments of rubber tube would pass away. Experience on the dog is very satisfactory to the inventor, but every experience has led me to believe that all the aided sutures are not what the inventors claim for them; possibly an exception might be made in the case of gastroenterostomy where the aided suture or ring would answer very well. I have abandoned all the methods. I have tried all except Murphy's button. In the matter of their application to strangulated hernia where you have gangrene, it occurs to me that they are out of place; they necessitate a larger opening than is necessary simply to relieve the constriction. Again, the question comes up, Shall we do anastomosis at once or wait? I think that no experience in the matter of herniotomies will be of sufficient weight at present to dictate to surgeons in general what shall be the procedure in each and every case. I think there is a law fitting to each and every case, and I don't think that we can apply any specific rules covering all cases. I think that each case should be governed by the conditions that are present. I have seen gangrene of the intestine take place where there were very few symptoms; I have seen gangrene of the intestine take place in a very short time with very pronounced symptoms. What shall we do when confronted with such a problem? I think we shall have to rely on our own judgment and not on the experience of others. As to anchoring the intestine and waiting, I believe that is a very good idea, but unfortunately I am a little at sea to know what to do in some of these cases. I call to mind an unpleasant experience in which after anchoring as I supposed fairly securely, I found about four feet of the intestine outside of the partially open wound. Various devices have been called up, such as strapping a glass cap over the wound so that only a limited amount of intestine could be forced out. But it will break away the anchoring sutures in almost every instance if great care is not exercised. I am rather inclined to believe that while experience of individual operators is valuable, yet that each case as the emergencies arise is to be met in the most intelligent manner possible. I am rather in favor in cases where there is any doubt about the condition of the patient of not doing a radical operation such as resection at once. When I have done a resection in cases where the individual was at a low ebb or in a bad state of collapse, my operation has amounted to nothing more than a surgical exercise, and I therefore think that to relieve the constriction, place the intestine in the best position within the wound, drawing the integument a little over the intestine, using one or two or more sutures, making latticework as it were with the integument and anchoring the intestine in place is the best we can do in most of the cases. If you subject a patient to the operation of resection that takes time. I am a great advocate of doing all the operations of abdominal surgery in the shortest possible space of time. I think many of the bad results are not so much due to the operation as to the anæsthetic. That question does not come in here particularly. I want to say while I have done a fairly large amount of experimental work, with some work on the human subject in this field, I have abandoned and I am frank to admit it and take back all the recommendations of aided sutures, rings, plates, etc., I made early after publication of my work on intestinal anastomosis, and I now condemn absolutely the use of the intestinal plates and aided sutures of any kind whatsoever. You can accomplish just as much and almost as rapidly with the interrupted or the continuous Lembert suture, and you can have an opening quite large enough so that when subsequent contraction takes place, which follows rapidly, a failure in the ultimate result does not follow. You can make an anastomosis with an opening in the bowel two and a half to three inches. If you use a plate you have to introduce within the lumen of the intestine a mass of foreign matter which has to come away, and very frequently parts of it are retained for quite a little while. I have seen a rubber tube come away five or six weeks afterwards, and in gastroenterostomy I have had patients vomit parts of my ring; but taking the so-called absorbable rings, for instance Abbe's ring, that does not hold the parts together I think nearly as well as the simple suture. When you come to Senn's plates it may or it may not be absorbed; they cause kinking and are liable to bring about late obstructive trouble. Stricture is bound to follow. I hope that Murphy's button will prove more than a makeshift. I hoped that my rubber segmented rings would be of value to every surgeon, but I have become convinced that the unaided method by simple suture is the best suture in the hands of experienced abdominal surgeons — the aid sutures for the beginners and unexperienced. I do not believe we can set down definite rules in this matter of herniotomy, and I think each case is to be governed by the circumstances.

DR. M. H. RICHARDSON: We should always bear in mind the possibility of strangulated hernia in acute intestinal obstructions, even if no tumor can be felt at the usual seats of hernia. A few days ago I saw a case of acute intestinal obstruction at the New England Hospital, in the service of Dr. Mary Smith, due, as I supposed, to the sudden closure of a cancerous stricture. After Dr. Smith had exposed the intestines and had examined them from the jejunum to the sigmoid flexure without finding the cause of the trouble, a small segment of the small intestine was discovered in the internal ring; — it was a case of strangulated hernia with total obstruction discovered only by laparotomy and complete turning out of the contents of the abdomen. There was not the slightest reason for suspecting such a condition except on general principles. In my opinion the best treatment for a gangrenous hernia is, first, that which gives the best promise of life to the patient, and secondly, that which restores the lumen of the intestine; therefore, if the patient's strength is good, I believe in the performance of an excision with suture. This operation ought not to last more than one hour; — if the patient's strength does not admit of this, I think an artificial anus should be made. I have

never seen a case in which anastomosis seemed to me the better operation either in acute or in chronic obstruction. Conditions do, of course, exist both in chronic and in acute obstructions in which an anastomosis is indicated, but this operation as I understand it — never having performed or seen it — seems to me as complicated and difficult as end-to end suture. I believe the surgical profession is coming to this opinion that, when possible, immediate excision and end-to-end suture is the best thing. If this cannot be done safely, I think the next procedure in gangrenous hernia is to make an artificial anus. The subsequent resection is comparatively safe, not only because it may be done deliberately with full preparation of the patient and the bowel, but because the peritoneum becomes more tolerant. I remember very well the first operations for the closure of intestinal fistulæ that were performed in this community. I refer to the cases of Dr. Porter in which excision and suture of more or less of the circumference of the bowel was followed by immediate and most gratifying recovery. Recovery has followed all the secondary excisions and sutures that I have made myself; even in cases of resection and suture for acute conditions the results have been encouraging, though the prognosis is more unfavorable in the latter. Instead of leaving the bowel entirely outside, or of fastening it in the wound, the device which I have described elsewhere of protecting the line of suture by means of gauze seems to me to offer a very safe remedy for the dangers of end-to-end suture.[2] The only danger to a patient strong enough to stand the operation is in extravasation and general peritonitis. In two of my cases of complete resection and suture there was a small escape of fæcal matter some days after the operation. This was promptly drained by the gauze I had placed over the stitches, and no harm resulted. A small fistula remained — such as we see in appendicitis — which in each instance cured itself.

DR. E. H. BRADFORD: In confirmation of what Dr. Porter said as to the danger of starvation from artificial anus I can contribute one unfortunate case. It was that of ordinary strangulated hernia in a feeble woman. Resection was not done. The woman recovered from the operation and lived ten days. At the autopsy it was found that the patient had died of starvation, owing to the short upper portion of the intestine. If resection had been done the patient might have died from shock, but if she had survived that, she would not, at least, have died of starvation.

DR. GAY: Dr. Homans brought up two points upon which I want to say a word. The first relates to removing large quantities of omentum. In some cases that is successful, but we had one case at the City Hospital that was unfortunate; a large portion of the omentum was removed; the patient recovered from the operation, but as time went on, the stump of the omentum formed adhesions, which produced internal strangulation and rupture of the intestine, for which we had to do laparotomy, and the result was fatal. Another condition I have met with, is in the case of old women with enormous umbilical herniæ, which have become strangulated. You open a hernia of that sort and find the adhesions very extensive and firm. In one case of that sort I simply found the constricting ring, divided it freely, closed the wound, and left everything as it was before. She made a quick and satisfactory recovery.

[2] Boston Medical and Surgical Journal, March 3, 1892.

DR. ABNER POST presented a

A CASE OF ŒSOPHAGOTOMY.[3]

DR. M. H. RICHARDSON: I am very much interested in the subject of operations upon the œsophagus, and I am very glad to see this case. The application of the principles of asepsis to this procedure as recommended and practised by the reader is timely, for in our operations upon the œsophagus we may be still clinging too much to the methods of pre-aseptic days. I have always left the œsophagus open, letting the wound close gradually by granulation. If I have another case of this kind without suppuration I shall close the œsophagus at once, leaving the external wound open. I believe the dangers of suturing immediately the œsophagus depend more upon the closure of the external wound than upon the closure of the œsophagus itself. In regard to the treatment of foreign bodies in the œsophagus I speak from a very limited experience, — the experience of most surgeons must, I think, be limited. I have removed foreign bodies from the œsophagus by incision twice: — once by gastrotomy,[4] and once by external œsophagotomy.[5] The former case recovered and the latter died. An external œsophagotomy for stricture was also fatal.[6] I have had better success in opening the pharynx than I have had in external œsophagotomy. I recall three cases in which I have successfully taken out the side of the pharynx for malignant disease. In two of them I removed also the tonsil. The pharynx was left partly open in all the cases. The principle is the same as in external œsophagotomies as to the dangers from sepsis: in pharyngotomy there is greater reason for leaving the wound open from the more complicated movements in deglutition and from the proximity of the larynx. (One of these cases is briefly described, with the specimen — a round-celled sarcoma — on page 320 of the *Boston Medical* and *Surgical Journal* for March 31st, 1892.) From the impacted foreign bodies the patients ran great risk, though one had remained near the cardiac orifice eleven months. The location of the foreign body is of great importance. Below the clavicle a short distance the œsophagus comes in contact anteriorly with the heart or the aorta; lower down it is in close relation with the thoracic aorta, and on the left side with the pleura; the only place in which perforation would not be followed by immediately fatal or very serious results is the posterior wall. It takes a very short time for a foreign body like a coin to erode the aorta or to set up a pleurisy or a pneumonia. I think the dangers from external œsophagotomy under the aseptic conditions which Dr. Post describes are very slight.

It seems to me that this operation for the removal of foreign bodies is not justifiable until gentle efforts at extraction have been made through the mouth. When pointed bodies are impacted the use of the coin-probang may be dangerous, because after the probang is fast it cannot be withdrawn without either dislodging the body or breaking the instrument. Forcible attempts at dislodgement are extremely hazardous, and no instrument should be selected, therefore, that may not be under perfect control. In one of my cases the probang got hooked in this way under a tooth-plate, and the surgeon was obliged to use enough force to

[3] See page 642 of the Journal.
[4] Boston Medical and Surgical Journal, December 16, 1886.
[5] Loc. cit., April 27, 1893, page 421.
[6] Loc. cit., January, 1892, page 58.

break off the metallic end. This part was afterwards discharged by the rectum. On the other hand, in the case of a plate of teeth which had been impacted in the œsophagus at the level of the clavicle eleven months, I used the coin-probang with the greatest ease and success.

The last case of foreign body in the œsophagus that I have seen was in an insane person who had swallowed a teaspoon. I removed the spoon by external œsophagotomy, and the patient died two days afterward. We were unable to find the cause of death, but it is probable that the sharp edge of the silver spoon had cut through the œsophagus. In impacted foreign bodies, exploration should be made early; we should not wait for such symptoms of erosion as pleurisy or pneumonia or septic absorption. In opening the œsophagus above the clavicle we may explore with the finger to a point just below the arch of the aorta, and more or less intelligent use of instruments may be employed, even if the foreign body is lower down. If the impaction is at the cardiac orifice, the stomach route may be used successfully, as in my first gastrotomy and in the cases reported later by Bull and Phinney.

Dr. Brokaw: I have nothing to add of particular interest except one point in regard to the use of probangs and various instruments, particularly the coin-catcher. I am rather afraid to use them after an experience I had a year or two ago in the case of a child who had swallowed quite a large piece of bone. The piece of bone lodged very firmly and I tried everything to dislodge it. I used the coin-catcher and it caught on the sharp edge of the bone. I removed it not without some effort. Quite a profuse hæmorrhage followed. The question arose, What am I going to do if the hæmorrhage keeps on? The hæmorrhage was terrific. He would vomit the blood, and he bled so furiously that I was very much afraid that I was going to lose the patient. What vessel of size I had hurt I did not know. The mucous membrane probably was the origin of the bleeding. I think the use of these mechanical measures for removing a body whose exact location, shape and character we do not know, is like catching fish; we do not know what kind of fish we have on the hook. I think the operation of œsophagotomy should be done more frequently than it is. There are three points where the impaction can take place; at the junction of the pharynx and the œsophagus, then one and a half inches below that and at the cardiac end of the œsophagus. At those three points we have normally some constriction. Of course if the body is well down it is impossible to reach it from above very readily and by making an incision we at least gain the difference in space from the teeth to the beginning of the œsophagus where most frequently, fortunately, the impaction takes place. I wish to congratulate Dr. Post on the success he had. Having recently looked up the literature, I know of no case where immediate union by suture occurred or where it was attempted to suture the œsophagus at once. I see no reason why it should not be done. It requires an aseptic suture and that the sutures be placed with the very greatest accuracy so that there shall be no possibility of leakage; and I believe in these cases it is unwise to feed too early after such operations.

Dr. D. W. Cheever: My contribution will be chiefly historical. In 1868 I revived the subject here by looking up cases, and by operating on two cases, and it is quite interesting to note that previous to 1868, although a great deal of good surgery had been done in the world, yet the operation of œsophagotomy had been done but twenty times in the history of medical literature; the first time in 1760 or 1770, and up to 1868 twenty cases were all that were recorded; and since 1868 one hundred and forty odd cases; so that the latest tables give, I think, one hundred and sixty or one hundred and seventy cases in all. It is curious also to note the fact that the percentage of mortality is the same that it was in those first twenty cases, that it remains obstinately at 25%; that one in four die from the operation of œsophagotomy. The reason of the deaths is the lateness of the operation. If the operation is done early it is almost sure to save the patient. Demarquay, some thirty years ago, made a large number of experiments in France, on dogs, and the results show that foreign bodies impacted in the œsophagus tended to produce inflammation and abscess after the third day, that the third was the latest in animals, — in which inflammatory processes are slower, whose systems are more tolerant than ours, — that the third day was the latest that a foreign body could remain in the œsophagus without provoking inflammation that was sure to end in abscess, and abscess that was destructive of life, frequently. Among the first twenty cases I recorded, four died; and in all of these abscess had occurred. The lung and pleura had been perforated, the aorta had been perforated once, and posterior mediastinal abscess had occurred in another case; and in one case caries of the vertebræ followed and the patient survived a while, but finally died from this. So now, although the operation has become popular, the mortality has not decreased; and I think it is only because it is not done early. The last case I had was about a year ago. My delay, I think, added to the fatal result. My delay was a very foolish one. The patient came to the hospital and was a half-demented, feeble person, an epileptic; his description of himself was very imperfect. He was regarded as probably an hysterical patient; and not seeing any of his friends and not realizing at the moment what might have taken place, I let a day go by. Then some of his friends came and gave an intelligent account, — that the man was found in an epileptic fit, and that he had a set of false teeth, and when picked up part of the teeth were gone. Then I realized that there might be something in the œsophagus. Meanwhile he was sitting up in bed, and swallowing liquids with tolerable facility. On passing the whalebone probang with the ivory knob, at the depth of nine inches from the incisors I came upon a hard substance which was the plate and six or seven teeth attached. The location was below the nipple, nine inches from the incisors. It was rather a question what I had better do, whether I could recover it through an opening in the œsophagus, or had better imitate Dr. Richardson's manœuvre of opening the stomach and getting it from below. I did œsophagotomy, and was a long time extracting the substance. There was no hæmorrhage, but it slipped and slipped, and finally I extracted it. The patient did pretty well for a day or two, but gradually sank and died in the course of the first week. I never saw the œsophagus unite by first intention. I belong to the old school which does not sew it up. I never gave the patient anything to eat in the first twenty-four hours, but nourished by the rectum. It is not always that the wound leaks. It may not unite, but does not leak always. In operations in the pharynx, possibly the

muscles of the pharynx are more apt to overlap and close in the act of swallowing, at any rate, operations done on the pharynx from the outside do not leak. The œsophagus is more apt to leak, but they all recover. I see no objection to suturing the œsophagus if the external wound is left open. The dangers are of leakage, deep cervical abscess, mediastinal abscess, and death if this occurs and is not promptly recognized. I should think if the œsophagus is sutured and the wound left open, it might be an advance in the *technique* of the operation.

DR. J. HOMANS: I should like to mention a case where a quarter of a dollar was retained four and a half months. The little girl was brought to the hospital some ten years ago. The coin came up at once on the bristle probang. It was very black, as all coins are which have been retained in the alimentary canal. The child had been able to swallow fluids, and no serious trouble had resulted from the presence of this foreign body.

DR. C. B. PORTER: I wish to say a word in reference to two cases under my care. One was at the hospital two or three years ago. It was that of a woman who six weeks before had swallowed the better part of an artificial plate for teeth. The teeth were not on the part swallowed. It was quite readily removed by the coin-catcher. Another case was that of a man who came and said he had swallowed his whole set — two teeth on each side. I tried to catch it with the coin-catcher, but it slipped and went into the stomach. He said he would keep watch, and if symptoms developed he would let me know. About six months after that I received a paper stating that this man had recovered the plate and the four teeth. The teeth had become separated from the plate, and he had passed them per anum and was happy. That is a pretty large body to pass; but I remember as long ago as I was a student under Professor Wyman, of Cambridge, I spoke to him about the passage through the alimentary canal of foreign bodies, and he said never despair of anything after it has once got down. He told me of a case of a man who swallowed a large-sized jack-knife with the blade open, which passed successfully by the rectum, passing through without wound.

DR. G. W. GAY: I have done œsophagotomy four times. The most satisfactory case was for the removal of a cent from the œsophagus of a child three and a half years old. She had carried it several months. During the last month she grew very thin, and got so that she could not swallow anything. Chloroform was given. The patient recovered. The second case was that of a plate of false teeth. It was removed after five days. The man died of exhaustion and shock. Another instance was for a fish-bone, which recovered very promptly. I once opened the œsophagus in order to pass a probang through a cancerous stricture into the stomach, upon which I could pass the Simond's tube. The lower opening was located upon one side of dilatation in the œsophagus, so that no effort of either Dr. Mixter or myself could get a probang through the stricture. That was successful, and the patient lived several months. Another case is interesting from the fact that the symptoms were so slight, and the patient could swallow so well, that I was misled and missed the opportunity of doing the operation at the right time. The woman had got a little piece of wood into the œsophagus. She died, and the autopsy showed an abscess in the anterior mediastinum, which contained a small sliver. Another case, which happened in the practice of Dr. Garceau, of Roxbury, is interesting. A woman swallowed a small bone, which lodged in the œsophagus. The doctor passed a sponge probang, and pulled out a bone about an inch long. The patient was not relieved by the operation. I saw her the next day. The question arose as whether the bone had caught in the walls of the œsophagus and had been broken and a part been left. She was old and feeble, and I thought we had better wait. The next morning the lady got out of bed, while her attendants were out of the room, and dropped upon the floor dead. The autopsy revealed rupture of the left auricle of the heart. There was no fish-bone nor other foreign body in the œsophagus.

DR. POST: The fortunate result, I think, occurred in spite of the fact that the operation was so long delayed, and the few bubbles of gas, the commencing emphysema, showed that the operation was delayed as long as it ought to have been, and that symptoms were just beginning which would very likely have led to less favorable ending if interference had not taken place. The coin-catcher made a most uncomfortable sensation as I passed it. I hit upon the coin with it, but did not engage it; but the coin seemed so firmly fixed that the thought went through my mind that if I had caught it with the instrument and failed to extract the coin, it might have been extremely difficult to disengage the instrument itself. The œsophagus was not sutured. The only sutures were in the upper and lower ends of the external wound, leaving the middle of the wound perfectly free, with the intention of giving a free exit to alimentary substances or to any discharge.

DR. JOHN HOMANS read a paper on the

REMARKABLE EFFECTS OF DIVULSION OF THE URETHRA.[1]

Recent Literature.

Outlines of Obstetrics. A Syllabus of Lectures delivered at the Long Island College Hospital. By CHARLES JEWETT, A.M., M.D., Professor of Obstetrics and Pediatrics in the College, and Obstetrician to the Hospital. Edited by HAROLD F. JEWETT, M.D. Philadelphia: W. B. Saunders. 1894.

This little volume is, as its title implies, a syllabus of Dr. Jewett's lectures at the Long Island College Hospital, and is primarily intended as an assistance to the students of that college in their assimilation of their obstetric course, and is certainly admirably adapted for that purpose. It is not sufficiently full to be of value as an independent source of information to the practitioner. We have no doubt that many a busy physician would be enabled, by a perusal of this book, to find many weak points in his knowledge which ought to be brushed up by a study of a more extended work. To the specialist it possesses much interest, since it enables him to gain an accurate idea of Dr. Jewett's position on the many points of interest in obstetrics with a minimum loss of time.

[1] See page 641 of the Journal.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, DECEMBER 28, 1893.

A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.56 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.

All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal, should be addressed to the undersigned.

Remittances should be made by money-order, draft or registered letter, payable to

DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

ANNUS MEDICUS, MDCCCXCIII.

THE medical year now closing, though unmarked by any events of special or unusual importance, has been an interesting one in many ways. The new work in medicine and bacteriology has been along the line of therapeutical application of present theoretic knowledge, rather than of new discoveries. The theory of blood-serum immunity has claimed much attention, and promises good results in the not far distant future. The fear of another cholera epidemic led, during the winter and spring, to important sanitary action on the part of national and municipal governments; and the result of the improved hygienic condition of many large cities has shown most conclusively that the real treatment of epidemic disease is prevention. The medical profession has suffered great loss by the deaths of Jean Charcot and Sir Andrew Clark, both of whom died suddenly in the fulness of their intellectual powers.

EPIDEMICS.

The Cholera Epidemic this year was in marked contrast to that of 1890 and 1892. There was not the invasion and steady progress across Europe as in those years, but a relighting of the various centres of disease left smouldering during the winter; and in every place affected this year the disease was light and easily controlled, or virulent and general, just in proportion to the amount of cleaning up which had been done during the months of freedom. Never was a better example of this truth of the preventive value of cleanliness and vigilant isolation than in the city of Hamburg. Last year's terrible epidemic taught the lesson; and this year, owing to the improved sanitation and purified water-supply, the total number of cases was only a few score. The epidemic was chiefly European, and was not a new incursion from India as last year. By February it had pretty nearly died out all over Europe; and even Russia was declared free from the disease, though there is strong reason to believe that there was unavowed cholera present in St. Petersburg all winter in spite of the great cold, which reached a minimum of 13.5° F. lower than has been recorded for one hundred and thirty-eight years. In Podolia and the Volga provinces there were nearly a thousand cases during January and the first half of February.

On March 18th cholera appeared in a decided form at Odessa, and was suspected to be increasing in St. Petersburg, though denied by the Government. Throughout the Russian provinces it made steady gain, not along any definite route, but appearing simultaneously in many places. Astrakhan, Moscow, Nijni-Novgorod, Kieff and Podolia were first and chiefly infected. Shortly afterwards cases made their appearance in Austria and southeastern Hungary and in Galicia, where it was brought from Podolia. By the middle of April, all the southern provinces of Russia and the neighboring frontiers, had a largely increasing number of cases, many of them fatal. At this time the disease, which had been casually reported from Lorient near Brest in France, assumed serious proportions; and simultaneously cases occurred in many places in southern France and at a few points in northern Italy. Up to the middle of May, Russia bore the brunt of the epidemic, Podolia especially having a large number of cases. In Austro-Hungary it spread slowly along the river tributaries, chiefly with isolated cases. On May 27th the first case was reported from Hamburg; and the same week Marseilles, La Rochelle and Toulon became infected.

The most serious outbreak of the year now made its appearance in Mecca, which had been free from disease during the spring. The pilgrimage to the Holy City began the last of May, and by the end of June over 32,000 pilgrims had passed through Suez; and by the middle of June it was estimated that there were over 100,000 persons gathered at the Sacred Mount ready to start for Mecca. The first case of cholera occurred June 8th, and the number grew rapidly. Between the 16th and 20th there were 830 deaths, the next day 455, and by the following day 1,000. A few days later the disease broke out at Jeddah. In three weeks there were 5,000 deaths. The return pilgrimage began the first week in July; and by the middle of August the epidemic had come to an end, with a death-roll of some 10,000 persons. The quarantine established at El Tor for returning pilgrims served a most useful purpose. There were 135 cases and 91 deaths only, and the disease was not carried past into Egypt.

By the middle of July cholera had appeared in Spain, in some twenty towns in France, and in several Italian cities. In Naples there were 90 cases the last week in June; but the Italian Government declared there were none, and no precautions were taken in any way. Not content with this, it officially suppressed dispatches sent by foreign representatives and newspaper men. In August the disease broke out in Palermo; and both here and in Naples there was a serious epidemic, with many hundred cases before it ceased.

In Russia, July and August saw a continued in-

crease in every part of the country, the total number of cases reported from January to September being 62,107, with 24,284 deaths, as against 433,643 cases and 215,137 deaths in the corresponding time in 1892. The epidemic was not only smaller, but less severe, there being one-seventh as many cases, but only one-ninth as many deaths. Germany remained practically free from the disease; a few isolated cases at Berlin, Stetten and Hamburg being all there were.

In Antwerp the disease appeared July 28th, and ran a moderately severe course. In Holland some thirty-four places were infected. In Spain the cases were few in any one town, but nearly fifty centres of disease were reported during the summer.

In England the cholera gained a foothold at Hull and Grimsby in the middle of August, and a considerable number of cases with many deaths occurred. Isolated cases were reported from London, Liverpool, Leicester and several midland towns.

The sanitary regulations, elsewhere referred to, issued by our own government in the spring, and especially the detailing of special inspectors for the chief European ports, to supervise the disinfection of emigrants and baggage before sailing, undoubtedly saved the United States from an invasion of cholera. On August 4th the steamer *Karamania* arrived at New York from Naples, having lost three steerage passengers during the passage. She was quarantined, and the passengers kept under surveillance. Twenty-two subsequently were sent to the hospital with true Asiatic cholera, and three of them died. August 29th two deaths occurred in Jersey City from acute diarrhœal diseases, which bacteriological examination showed to be Asiatic cholera. These cases had not been in contact with the immigrants on the *Karamania*, and no cause was found for the occurrence. No other cases occurred in either city.

SMALL-POX has been widely distributed during the year. On the Continent it was nowhere epidemic, but in England it has been exceedingly prevalent and widespread. In London, especially, the disease assumed serious proportions. In February there were over fifty cases a week, and during March and April the number was still very high. From January 1st to June 1st there were 1,450 cases and 86 deaths in London alone, a mortality of nearly six per cent. During the summer there was a falling off in the number of cases, which reached the lowest point early in September, when there were only two or three a week. The last of October saw an increase, and during November there was an average of fifty cases a week. Over all the rest of the island — especially in the Midlands, in Manchester, Birmingham, and Lincolnshire and Yorkshire — there was a seriously large number of cases.

In this country the disease has been reported from nearly every State east of the Mississippi River, showing widespread centres of infection and an insufficiently protected population. New York has naturally had the largest number of cases, but there was a serious outbreak in western Pennsylvania in March. In Reading, Pa., a city of 70,000 inhabitants, there have been 678 cases with 18 deaths between January 1st and December 11th. Chicago has reported many cases since October. In Boston there were two cases stopped at quarantine in May. October 30th several cases occurred in various parts of the city, traced to a case which was allowed to land from the Cunard Steamer *Catalonia*. This series of cases was followed by a second group traced to one family, which, however, had no connection with the steamer cases. In all there have been 26 cases and 4 deaths. In considering the question of protection by vaccination and revaccination it is important to give due weight to these facts.

TYPHUS FEVER was reported from many districts in Europe, but no serious epidemic occurred. In New York there was another outbreak of the disease very much after the fashion of a year ago. On December 29, 1892, several cases of typhus fever were discovered in a block of cheap tenement-houses in one of the lower wards of the city; and within the first week of January, this year, 53 cases were reported. The epidemic while confined to New York City was not without serious menace, for it continued well into June before it subsided. Several nurses and attendants were infected and died. The total number of cases up to June 10th was 466, with 192 deaths, a mortality of 41.2 per cent. This is a more serious record even than that of last year, when there were a few over 194 cases and 29 deaths. This rapid increase in typhus fever in New York during the last few years makes all the more important and timely the new quarantine regulations and more strict supervision of immigration.

YELLOW FEVER continued its devastation at Santos throughout the first half of this year, which is now the third year of continuous epidemic disease there; scattered cases occurred at various southern ports during the summer, but without gaining foothold. At Brunswick, Ga., the disease appeared in July with a few mild cases, and there were occasional cases during August. In September the disease suddenly became epidemic, lasting until November 23d, when ice formed. A quarantine camp was established, and so efficiently maintained that the disease was confined entirely to Brunswick and Jesup. In all there were 1,001 cases and 53 deaths, 409 of them whites, one Mongolian and 12 blacks.

INFLUENZA. — In the spring and early summer there was a mild outbreak of influenza in Italy and some other parts of Europe; but, generally considered, there was no pandemic, as there was last year. During the last two months many cases have been reported from England and Germany, especially on the lower Rhine and in Hesse. In this country the disease is said to be starting up in many places, but in a milder form than in the last two epidemics.

The whole continent of Europe, and particularly Russia and France, suffered greatly from the cold during the winter, the mortality from cold alone being

greater than for many years. An unusual and prolonged drought during the spring and early summer destroyed the crops and caused great hardship. In parts of France and Italy no rain fell for three months, and the farmers were obliged to kill their cattle for want of water to give them.

QUARANTINE.

The narrow escape of the country from an invasion of cholera in the autumn of 1892, the continuance of epidemic cholera in Russia during the winter of 1893, and the occasional occurrence of cases in different parts of Europe claimed the attention of sanitarians and public health officials, and forced the consideration by Congress of the unsatisfactory position of our quarantine regulations as well as of the imperfect equipment and variable, uncertain and unscientific administration at some of our ports of entry. The importance of securing co-operation from our immediate neighbors to the north and south, and the necessity of regulating the passenger traffic of the great ocean transportation companies became from one week to another more and more evident. Congress was memorialized by several of the large and active medical organizations in the cities of the Atlantic sea-board. It was hoped that some legislation might be secured creating a National Health Bureau by which quarantine might be administered or at least supervised for the whole country. In the month of February an act was passed by Congress granting additional powers and imposing additional duties upon the Marine-Hospital Service. This act abolished the old National Board of Health; gave power to the President to prohibit immigration in whole or in part; authorized him to detail any medical officer of the Government to serve in the office of the consul at any foreign port; affirmed the duties of United States consular officers in regard to the cargo, passengers and crew of vessels sailing for our ports; and authorized the Secretary of the Treasury to remand an infected vessel arriving at any port not provided with proper facilities for its treatment, at its own expense, to the nearest national or other quarantine station where suitable accommodations and appliances were provided for the necessary disinfection and treatment of the vessel, passengers and cargo.

Though not what was desired by those most competent to judge and most conversant with sanitary questions as affecting the country at large, it was all that could be obtained from Congress, and the most and the best was made of it. A conference of health officers from the Atlantic and Gulf ports was held at Washington in March, at the invitation of Surgeon-General Wyman of the Marine-Hospital Service. Some of the best medical officers in the Marine-Hospital Service were detailed to serve in connection with the consular offices at European ports, where their work — notably at Hamburg and Naples — was invaluable. This provision, supplemented by the intelligent co-operation of most of the Steamship Companies, and the judicious vigilance of the health officers at our ports of entry, was attended by the happiest results. Not only did the country escape an epidemic, but hardly a case of cholera found access within our borders.

Apart from the prevalence of extraordinarily fine weather during the summer of 1893, the fact that Western Europe and the United States escaped a serious epidemic outbreak of cholera is a striking tribute to the advances made by Sanitary Science in recent years.

MEDICAL LEGISLATION.

Medical legislation in the United States, this year has had its usual history: many good bills have failed to pass, and, as in compensation, some very bad ones have also been defeated.

With a view of keeping Canadian pleuro-pneumonia out of the United States, the Secretary of the Treasury instructed collectors of customs on the northern frontier that neat cattle may enter the United States from Canada only at Buffalo, N. Y., after passing the inspection prescribed by the Secretary of Agriculture.

In Massachusetts the law providing for the registration of deaths by physicians, in connection with the obtaining of a burial permit by undertakers, has been amended so that in cases of still-born children and those dying immediately after delivery, the same form is required as in other deaths, and a penalty is provided for making false statements. A law was passed providing that "sweat shops" shall be licensed and superintended by the police, and that in cases of danger from infectious diseases or vermin, the State Board of Health shall take charge and control. A bill was passed requiring local boards of health to notify the State Board of the existence in their districts of any disease dangerous to the public health. Hereafter plumbers must be licensed, and must pass an examination. The examining boards consist of the chairman of the local board of health and the inspector of buildings. It will be no longer possible for any ignoramus to practise plumbing, but the practice of medicine is still unrestricted.

The Michigan State Board of Health unanimously decided that consumption is a dangerous, communicable disease, and must be reported by physicians and householders to the several health boards.

In New York a bill was passed providing for the levying of a special annual tax for the support of the insane. The tax of one-third of a mill, imposed by the bill is expected to yield about $1,350,000 each year. The New York City Board of Health took similar action in regard to tuberculosis to that of the Michigan State Board.

The legislature of Ohio passed a law regulating the practice of veterinary surgery, and requiring an examination before allowing any one to practise upon horses. Ohio has no medical practice law.

In Pennsylvania the legislature passed a bill establishing a medical council and three State boards of medical examiners, corresponding to the three so-called schools. The boards are to be appointed by the Gov-

ernor, and their work is to be supervised by the medical council, consisting of the Lieutenant-Governor, the Secretary of Interior Affairs, the Superintendent of the State Board of Health, with the presidents of the boards. Applicants will be required to have studied medicine for four years.

In Tennessee an act was passed to prevent the spread of communicable diseases, providing that the local health authorities shall be notified of all cases or suspected cases of communicable disease, except any venereal disease. The local board is required to notify both the State Board of Health and the Board of Education of the district in which the case occurs.

In Washington the State legislature passed an anti-cigarette law, making it a criminal offence to manufacture, buy, sell or give away, or to have in one's possession cigarettes or cigarette paper.

The Superior Court of New York City has ruled that when a married woman is so injured through the negligence of another person as to miscarry, her husband can recover damages for the loss of the child.

The Supreme Court of North Dakota has ruled that mental suffering is as properly considered in estimating damages as is physical pain. The impairment of mental powers, naturally a proper element when proved, is only to be considered by the jury when claimed in the suit and evidence.

The Supreme Court of Illinois has made the following ruling regarding expert medical testimony: "A practising physician who is shown to be a graduate of a regular college and to have practised his profession for many years, is competent to give his opinion upon a hypothetical question, setting forth the symptoms of a deceased person, whether the death was from the effects of arsenical poisoning, although he may not be shown to have had any case of such poisoning. A medical witness, in giving his opinion as an expert, is not confined to opinions derived from his own observation and experience, but may give an opinion based upon information derived from medical books."

The Supreme Court of Wisconsin has ruled that when a married woman sustains a personal injury, and her physician does not caution her to avoid pregnancy, and there is no evidence that her injury was such that he should have done so, her pregnancy occurring after the accident, even if it prolong her injury or delay her recovery, is not necessarily, and as a matter of law, sufficient to justify a reduction of damages.

The Legislative Assembly of the Island of Jersey declared by vote that quarantine is not preventive of cholera, and therefore refused to establish a quarantine against vessels from ports alleged to be cholera infected.

MISCELLANY.

Early in the spring an International Sanitary Conference was held at Dresden, on the initiative of the Austro-Hungarian Government, to discuss the control of cholera epidemics. Delegates were present from nineteen European Governments. A chief part of the time of the Conference was spent in devising regulations for the uniform administration of land quarantine and traffic between infected and non-infected countries. A convention was signed by a majority of the countries represented, by which the Governments agree to notify contracting States of every appearance of a cholera focus in their territory. They also agreed that medical surveillance shall be given to all passengers from such a district for a period corresponding to the incubation of cholera, and decided that this shall be taken as five days.

During the year Haffkine has continued his work upon chemical vaccination against Asiatic cholera, and has inoculated over four hundred persons at Agra, British India — a notorious home of cholera — with no untoward effects and apparently good results.

In the line of bacteriological diagnosis of disease is the establishment by the New York City Board of Health of a laboratory for the free diagnosis of membranous diseases of the throat and fauces. In Boston the Bacteriological Department of the Harvard Medical School has offered to make cultures of all suspected cases of diphtheria for the purpose of securing a more accurate diagnosis by the profession.

The British Leprosy Commission appointed in 1890 made its report in the spring of this year. In their investigations they personally examined over two thousand lepers in India and supplemented their inquiries by prolonged pathological and bacteriological researches. About nine per cent. of the cases offered for examination were found to be wrongly diagnosticated. They reported an actual and relative decrease in the spread of the disease in the last ten years. On the important question of contagiousness, they concluded that though leprosy must be classed as a contagious disease, yet the risk of contagion is so small that it may be disregarded, and that the attention should be directed towards the removal of predisposing factors.

The fiftieth anniversary of Pettenkofer's doctorate was celebrated in Munich on July 1st. Various orders were bestowed upon him by the Emperor, the Prince Regent of Bavaria and the King of Servia. The burgomasters presented him with the "Gold Bürger's Medal," the first time this honor has been given to a person holding an honorary citizenship. Congratulatory addresses were read from various European universities, and a banquet brought the celebration to a close.

On July 5th the centenary of the death of John Hunter was commemorated by an exhibition of relics associated with the great surgeon in the library of the Royal College of Surgeons. In addition to the articles belonging to the college, many valuable articles were loaned by private owners.

The tercentenary of the admission of William Harvey as a student of Gonville and Caius College, Cambridge, was celebrated on the 21st of June by the Master and Fellows of the College. A large and distinguished company were entertained at dinner, and a number of new and interesting Harvey relics were exhibited.

The disasters of the year have been numerous. The Strafford County Insane Asylum at Dover, N. H., was burned to the ground on the night of February 9th, and forty-four of the inmates were killed. Most of them were women who were locked in their rooms at night and were unable to escape owing to the rapid spread of the fire. In June the building in Washington, D. C., which was formerly Ford's Theatre (where President Lincoln was assassinated, but which for several years

had been used by the Medical Department of the Army) collapsed while five or six hundred employees were at work there, killing about twenty-five and wounding many more. In this month also occurred a collision between the British warships *Camperdown* and *Victoria* while manœuvering off the African coast. Admiral Tryon and nearly four hundred men were drowned, many being horribly mangled by the revolving propeller as the ship sank bow first. The first of September a terrible hurricane swept over the South Carolina coast, entirely inundating the low range of sea islands. Many hundred persons were drowned, and the destruction of crops and dwellings left the few who survived exposed to the perils of hunger and disease from the unburied bodies of men and beasts. The prompt assistance of the Marine-Hospital Service did much to prevent a widespread epidemic. An equally severe storm swept the English channel during the autumn, causing much damage to shipping and harbors and drowning many hundred seamen. The rush of travel to the World's Fair at Chicago was unfortunately attended by a great and unwarrantable loss of life from railroad accidents. The many extra excursion trains running out of schedule time were almost daily subject to collision.

MEDICAL CONGRESSES AND MEETINGS.

The most important meeting during the year was the first Pan American Medical Congress, which was held in Washington, D. C., September 5th, and opened by the President of the United States in person. The idea of thus bringing together in closer relationship the various nations of the Western Hemisphere was most successfully carried out. The constituent countries of the Congress, all of which sent official delegates in response to the invitation of the President, were Argentine Republic, Bolivia, Brazil, British North America, British West Indies (including British Honduras), Chili, Dominican Republic, Spanish Honduras, Mexico, Nicaraugua, Paraguay, Peru, Salvador, Republic of Colombia, Republic of Costa Rica, Ecuador, Guatemala, Hayti, Kingdom of Hawaii, Spanish West Indies, United States, Uruguay, Venezuela, Danish, Dutch and French West Indies. The work of the Congress was carried on in twenty-two sections; and at the close of the convention the foreign delegates visited different cities of the country as guests of the medical profession in each place.

Among other important meetings of Medical Congresses and Societies during the year were the following:

The American Gynæcological Society, in Philadelphia, May 16th; the American Laryngological Society, in New York, May 22d; the American Pediatric Society, at West Point, May 24th; the American Climatological Association, in Philadelphia, May 25th; the American Surgical Association, in Buffalo, May 30th; the Association of American Physicians, in Washington, May 30th; the American Association of Obstetricians and Gynæcologists, in Detroit, June 1st; the American Academy of Medicine, in Milwaukee, June 3d; the American Medical Association, in Milwaukee, June 6th; the Massachusetts Medical Society, in Boston, June 14th; the American Otological Society, in New London, July 18th; the American Ophthalmological Association, in New London, July 19th; the American Association of Genito-Urinary Surgeons, in Harrogate, June 20th; the American Neurological Association, in Long Branch, July 25th; the Association of Military Surgeons of the National Guard of the United States, in Chicago, August 8th; the American Dermatological Association, in Milwaukee, September 5th; the American Public Health Association, jointly with the World's Fair Auxiliary Congress of Public Health, in Chicago, October 10th.

The seventh French Surgical Congress met in Paris, April 3d; and the twenty-second Congress of the Association of German Surgeons was held in Berlin, April 12th. The twelfth German Congress of Internal Medicine was held in Wiesbaden, April 12th. The third French Congress for Tuberculosis, met in Paris, July 27th. The sixty-first annual meeting of the British Medical Association was held in Newcastle-on-Tyne, August 1st. The fourth International Congress for Temperance met at Haag, August 16th; and the Association of German Naturalists and Physicians in Nürnberg, September 11th. The eleventh International Medical Congress, which was to have been held in Rome, September 24th, was postponed on account of the prevalence of cholera in Italy, until March 29, 1894.

LECTURES.

In connection with established lectureships in the United States and Great Britain, the following lectures and orations were delivered:

The Mütter Lectures, in Philadelphia, by De Forest Willard, M.D., on "The Surgical Pathology and Surgery of the Spinal Cord, the Vertebræ and the Peripheral Nerves"; the Shattuck Lecture, before the Massachusetts Medical Society, by William Osler, M.D., on "Tuberculous Pleurisy"; the Lowell Institute Lectures, in Boston, on "Bacteriology," by William T. Sedgwick, Ph.D., Professor of Biology in the Massachusetts Institute of Technology. In Great Britain, the Croonian Lectures, on "The Pharmacological Action and Therapeutic Uses of the Nitrites and Allied Compounds," by D. J. Leech, M.D., Lond., F.R.C.P.; the Morton Lectures, on "The Parasitism of Protozoa in Carcinoma," by James Galloway, A.M., M.D., Aberdeen, F.R.C.S., M.R.C.P.; the Milroy Lectures, on "Changes of Type in Epidemic Diseases," by B. Arthur Whitelegge, M.D., B.Sc.; the Goulstonian Lectures, on "The Chemical Physiology of the Animal Cell," by W. D. Halliburton, M.D., F.R.C.P., F.R.S.; the Croonian Lectures, before the Royal Society, on "The Position of Pathology among the Biological Studies," by Rudolf Virchow; the Lettsomian Lectures, on "Syphilitic Affections of the Nervous System," by J. S. Bristowe, M.D., LL.D., F.R.C.P., F.R.S.; the Combe Lectures, on "Physiology," by Professor Stirling; the Cavendish Lecture, on "Some Changes in Surgical Opinion regarding the Diseases of the Urinary Organs," by Henry Morris, M.A., M.B., Lond., F.R.C.S., Eng.; the Bradshaw Lecture, on "Some Diseases of the Thyroid Gland," by William S. Greenfield, M.D., F.R.C.P.; the Lumleian Lectures, on "Aëro-therapeutics in Lung Diseases," by C. Theodore Williams, M.A., M.D., F.R.C.P.; the Harveian Oration, on "Pathology as the Basis of Rational Medicine," by Philip Henry Pye-Smith, M.D., F.R.C.P., F.R.S.; the Bowman Lecture, on the "Abandonment of Iridectomy in the Extraction of Hard Cataract," by T. Pridgin Teale, M.A., F.R.S., F.R.C.S.; the Hunterian Oration, on "The Life of John Hun-

ter," by Thomas Bryant, F.R.C.S., Eng. and I., M. Ch.; the Hunterian Lectures, on "Certain Branches of Operative Surgery," by Walter Rivington, M.S., Lond., F.R.C.S., and by M. Armand Ruffer, M.D., on "Recent Researches on Protozoa and Diseases"; the Romanes Lecture at Oxford, on "Evolution and Ethics," by John Huxley.

NECROLOGY. — FOREIGN.

Epaminonda Abate, M.D., well known for his study in the methods of petrifying human corpses, died in Naples, September 26, aged seventy.

Hjalmar A. Abelin, M.D., formerly professor of children's diseases in the Carolina Institute, Stockholm, died September 13, aged seventy-six.

Marcus Beck, M.D., F.R.C.S., professor of surgery in the University College Hospital, London, died May 25, aged fifty.

E. Warren Bey, M.D., an American physician and formerly surgeon-general in the Egyptian army, died in Paris, September 16.

Antoine Blanche, M.D., the distinguished French alienist, died at Auteuil, August 15.

Arnaldo Cantani, M.D., professor of clinical medicine in the University of Naples, died May 1, aged fifty-six.

Jean Martin Charcot, professor of the diseases of the nervous system at the Salpétrière, Paris, died at Morvan, August 16, aged sixty-eight.

Sir Andrew Clark, Bart., M.D., F.R.S., LL.D., president of the Royal College of Physicians of England, and consulting physician and lecturer on clinical medicine to the London Hospital, died in London, November 6, aged sixty-seven.

Charles Clay, L.R.C.S., Eng., L.R.C.P., Lond., who was considered in England as "the Father of Ovariotomy," died in Blackpool, September 19, aged ninety-two.

Robert Foster Dill, M.D., professor of midwifery in Queen's College, Belfast, died July 20, aged eighty-one.

Thomas R. Dupuis, M.D., professor of clinical surgery and anatomy in the Medical Department of Queen's University, Kingston, Ont., died June 25, aged sixty.

Alfred Hardy, M.D., professor of dermatology and of clinical medicine in the Paris Medical Faculty, died in Paris, January 22, aged eighty-one.

W. M. Grailly Hewitt, M.D., consulting obstetric physician to University College Hospital and emeritus professor of obstetric medicine in University College, died in London, August 27, aged sixty-five.

Otto Kahler, M.D., professor of clinical medicine in the University of Vienna, died January 24, aged forty-four.

Hans Kundrat, M.D., professor of pathological anatomy in the University of Vienna, died April 27, aged forty-nine.

Professor Le Fort, Vice-President of the Académie de Médecine of Paris, died at Paris, October 19, aged sixty-one.

Casimiro Manassei, M.D., professor of dermatology and syphilis in Rome, died January 14.

Jacob Moleschott, M.D., professor of physiology in the University of Rome, died in May, aged seventy.

Prof. Rawdon McNamara, one of the surgeons of the Meath Hospital and the representative of the Royal College of Surgeons in Ireland, in the General Medical Council, died in Dublin, April 12.

Césare Olivieri, M.D., director of the Pellegrini Hospital and one of the most prominent physicians of the Naples school, died in Naples, September 17, aged seventy-one.

Arnold Paltauf, M.D., professor of legal medicine in the University of Prague, died May 29.

Surgeon-Major Thomas Heazle Parke, who was chief medical officer under Stanley in the search for Emin Pasha, died at Alt-na-Craig, Scotland, September 10, aged thirty-six.

Charles Felix Michel Peter, M.D., professor of clinical medicine in the Faculty of Medicine, Paris, France, died June 15, aged sixty-nine.

John Rae, M.D., a noted Arctic explorer who had charge of one of the Sir John Franklin expeditions, died in London, July 24.

J. Schnitzler, M.D., professor extraordinary of internal medicine and laryngology at the University of Vienna, died May 4, aged fifty-eight.

John Tyndall died in Haselmere, England, December 4.

Walter Hayle Walshe, LL.D., M.D., F.R.C.P., emeritus professor of medicine and clinical medicine, University College, London, died December 14, 1892, in the eighty-first year of his age. He was for twenty-one years professor in University College, London, and was one of the most widely-known medical men of England.

Severin Wiciobycki, M.D., died in St. John's Wood, London, September 7, aged one hundred years and eight months.

NECROLOGY — UNITED STATES.

Henry W. Buell, M.D., at one time president of the Connecticut State Medical Society, died in Litchfield, Conn., January 30, aged seventy-two.

J. W. Branham, M.D., assistant surgeon in the Marine-Hospital Service, died at Brunswick, Ga., of yellow fever contracted while on quarantine duty August 20, aged twenty-five.

John J. Craven, M.D., once prominent in military and scientific circles, who superintended the building of the first telegraph line between New York and Philadelphia, died at Patchogue, Long Island, February 14, at the age of seventy-one.

J. S. Dorsay Cullen, M.D., professor of surgery and Dean in the Richmond Medical College, died in Richmond, Va., March 24, aged sixty.

Charles Warrington Earle, M.D., president of the board of directors of the College of Physicians and Surgeons and of the Women's Medical College of Chicago, died in Chicago, November 19, aged forty-eight.

Charles H. Fisher, M.D., secretary of the Rhode Island State Board of Health, died at Buffalo, N. Y., October 21, aged seventy-one.

Benjamin A. Fordyce, M.D., at one time president of the New York State Medical Association, died at Union Springs, N. Y., June 3, aged seventy.

Norvin Green, M.D., president of the Western Union Telegraph Company, died February 12, aged seventy-four.

Hermann August Hagen, M.D., professor of entomology at Harvard College, died in Cambridge, November 10, aged seventy-six.

David Harlan, M.D., a medical director in the

United States Navy, died at Churchville, Md., July 12, aged eighty-four.

Henry M. Harlow, M.D., for thirty-two years superintendent of the Maine Insane Asylum retiring in 1883, died in Augusta, Me., April 5, aged seventy-two.

Lyman B. How, M.D., of Manchester, professor of anatomy in the Dartmouth Medical School and at one time president of the New Hampshire Medical Society, died in Hanover, N. H., September 15, aged fifty-five.

Edward H. James, M.D., for twenty-seven years a member of the New York City Board of Health, died in New York, March 12, aged seventy-three.

John M. Keating, M.D., LL.D., formerly of Philadelphia, and well known as the editor of the "Cyclopædia of the Diseases of Children," died at Colorado Springs, November 17.

Charles Carroll Lee, M.D., professor of gynæcology at the New York Post-Graduate Hospital and School, died in New York, May 10, aged fifty-four.

Samuel Logan, M.D., professor of surgery in the Tulane University, New Orleans, died January 12, aged sixty-nine.

Samuel E. Mumford, M.D., at one time president of the Indiana State Medical Society, died in Princeton, Ind., July 31.

Charles W. Parsons, M.D., professor of physiology in Brown University, died at Providence, R. I., September 2, aged seventy.

Timothy Stone Pinneo, M.D., professor of belles lettres in Marietta College, Ohio, and the author of Pinneo's Grammars, died at Norwalk, Conn., August 9, aged ninety.

William H. Stokes, M.D., for thirty years in charge of the Mount Hope Retreat, the largest insane asylum in Maryland, died in Baltimore, May 7, aged eighty-one.

William B. Towles, M.D., professor of anatomy in the University of Virginia and the University of Vermont, died in Charlotte, Va., September 18, aged fifty-three.

Walter Vought, M.D., who was in charge of the Fire Island Quarantine Station during the cholera quarantine last year, died in New York, September 25, aged thirty-one.

James H. Wheeler, M.D., formerly president of the New Hampshire Medical Society, died in Dover, N. H., January 26, aged sixty-one.

NECROLOGY. — MASSACHUSETTS MEDICAL SOCIETY.

George Frederic Bigelow, M.D., of Boston, died August 10, aged seventy-three.

James Henry Bodge, M.D., of Newton Centre, died October 19, aged fifty-three.

Cyrus Faulkner Carter, M.D., of Boston, died June 14, aged thirty-one.

Henry Colman, M.D., of Lynn, died November 12, aged fifty-three.

Charles Frederick Crehore, M.D., of Newton Lower Falls, died November 8, aged sixty-five.

Nathan Brown Edwards, M.D., of North Chelmsford, died June 12, aged seventy-three.

David Sylvester Fogg, M.D., of Norwood, died August 30, aged seventy-two.

Richard Lord Hodgdon, M.D., of Arlington, died January 30, aged sixty-eight.

William Donnison Hodges, M.D., of Nahant, died March 6, aged thirty-nine.

Howland Holmes, M.D., of Lexington, died November 16, aged seventy-eight.

Chauncy Munsell Hurlbert, M.D., of South Dennis, died November 6, aged seventy-five.

John Furness Jarvis, M.D., of Boston, died February 10, aged sixty-six.

James Abercrombie Latimer, M.D., of East Cambridge, died August 10, aged forty-six.

Samuel Moore Logan, M.D., of Riverside, Cal., formerly of East Boston, died Nov. 20, aged sixty-five.

Jabez Baldwin Lyman, M.D., of Salem, died June 29, aged seventy-four.

Stephen Crosby Martin, M.D., of Brookline, died November 5, aged forty-three.

Asa Millet, M.D., of East Bridgewater, died March 21, aged eighty.

Joseph Howe Murray, M.D., of Jamaica Plain, died August 13, aged forty-three.

Samuel N. Nelson, M.D., of Revere, died February 25, aged thirty-six.

Horatio Nelson Page, M.D., of Chelsea, died September 6, aged eighty-seven.

John Renton, M.D., of Boston, died December 15, aged seventy-four.

Richard Henry Salter, M.D., of Boston, died August 4, aged eighty-six.

George Woodbury Sargent, M.D., of Lawrence, died January 1, aged fifty-eight.

George Cheyne Shattuck, M.D., of Boston, a former President of the Society, died March 22, aged seventy-nine.

Benjamin Shurtleff Shaw, M.D., of Boston, died May 3, aged sixty-five.

Andrew Francis Shea, M.D., of Lawrence, died July 25, aged thirty-five.

Thomas Foster Sherman, M.D., of Boston, died September 26, aged thirty-seven.

George Williams Snow, M.D., of Newburyport, died May 21, aged fifty-eight.

Walter Gay Stebbins, M.D., of Springfield, died October 8, aged twenty-eight.

Charles Pratt Strong, M.D., of Boston, died March 14, aged thirty-seven.

Charles Carroll Tower, M.D., of South Weymouth, died May 29, aged fifty-nine.

William Tecumseh Sherman Wardwell, M.D., of Roslindale, died June 24, aged thirty-two.

Albert Poland Weeks, M.D., of Chelsea, died April 7, aged fifty-four.

Moses Williams Weld, M.D., of Boston, died January 16, aged seventy-five.

Henry Wheatland, M.D., of Salem, died February 27, aged eighty-one.

Elbridge Gerry Wheeler, M.D., of Middlefield, died in December.

John Birtwistle Whitaker, of Fall River, died August 24, aged seventy-seven.

George Franklin Woodbury, M.D., of Worcester, died June 18, aged forty-two.

Samuel Lane Young, M.D., of Ferry Village, Me., died April 19, aged eighty.

Since our report of last year, thirty-eight members of the Society have died, three less than in the previous year. The average age is a little lower than in the past year, being sixty and four-tenths instead of sixty-one and a half. Five had lived to be eighty years old, but eight had not reached forty.

METEOROLOGICAL RECORD,

For the week ending December 16, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		Weather. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..10	29.76	41	48	34	92	60	76	S.W.	W.	13	18	F.	C.	.03
M..11	30.16	22	26	18	40	43	42	W.	W.	25	10	C.	C.	
T..12	30.05	23	31	15	72	59	66	N.E.	N.W.	7	12	N.	O	.02
W..13	29.56	9	14	4	42	60	51	N.W.	N.W.	17	18	C.	C.	
T..14	30.18	8	16	0	54	64	59	W.	S.	10	10	C.	N.	
F..15	30.19	21	29	13	97	94	96	N.W.	N.E.	8	7	N.	R.	.61
S..16	29.62	37	50	24	92	100	96	W.	N.W.	8	3	G.	R.	.82
☞	29.90		31	15			69							1.48

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 16, 1893.

Cities.	Estimated population for 1893.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Consumption.	Typhoid fever.	Diphtheria and croup.	Scarlet fever.
New York . .	1,891,306	776	389	17.42	20.93	1.04	9.23	.78
Chicago . . .	1,438,000	—	—	—	—	—	—	—
Philadelphia .	1,115,562	491	138	10.00	18.00	2.00	5.20	1.20
Brooklyn . .	978,394	296	102	6.96	18.02	1.36	5.78	1.02
St. Louis . .	560,000	—	—	—	—	—	—	—
Boston . . .	487,397	237	65	11.34	24.36	—	6.72	2.10
Baltimore . .	500,000	—	—	—	—	—	—	—
Washington .	308,431	108	27	7.36	13.80	2.76	3.68	—
Cincinnati . .	305,000	—	—	—	—	—	—	—
Cleveland . .	260,000	113	41	13.35	23.14	—	8.01	1.78
Pittsburg . .	263,769	169	46	7.67	23.01	1.77	1.77	.59
Milwaukee . .	250,040	118	55	11.05	19.55	—	5.10	.85
Nashville . .	87,754	40	12	—	20.00	—	—	—
Charleston . .	65,165	35	8	2.86	11.44	—	—	—
Portland . .	40,000	19	3	—	31.56	—	—	—
Worcester . .	96,217	33	15	12.12	3.03	3.03	6.06	—
Fall River . .	87,411	36	16	5.56	13.90	—	—	—
Lowell . . .	82,191	42	16	14.28	21.42	2.38	7.14	—
Cambridge . .	77,100	28	7	21.42	17.85	—	7.14	14.28
Lynn	62,656	17	5	17.64	29.40	—	11.76	—
Springfield . .	48,684	19	3	15.78	21.04	10.52	—	—
Lawrence . .	48,355	—	—	—	—	—	—	—
New Bedford .	45,886	22	9	18.20	13.65	9.10	—	—
Holyoke . . .	41,278	—	—	—	—	—	—	—
Salem	32,233	12	3	16.66	8.33	—	8.36	—
Brockton . .	32,140	14	2	7.14	28.56	—	—	—
Haverhill . .	31,396	11	2	—	27.27	—	—	—
Chelsea . . .	30,264	17	3	5.88	29.40	—	5.88	—
Malden . . .	29,394	9	—	—	—	—	—	—
Newton . . .	27,556	—	—	—	—	—	—	—
Fitchburg . .	27,146	4	0	—	—	—	—	—
Taunton . . .	26,972	4	0	—	—	—	—	—
Gloucester . .	26,688	—	—	—	—	—	—	—
Waltham . .	22,058	5	0	20.00	20.00	20.00	—	—
Quincy . . .	19,642	4	1	—	—	—	—	—
Pittsfield . .	18,802	2	2	—	—	—	—	—
Everett . . .	18,585	3	3	—	—	—	—	—
Northampton .	16,331	6	0	—	16.66	—	—	—
Newburyport .	14,073	9	2	11.11	—	—	11.11	—
Amesbury . .	10,920	5	2	40.00	—	—	—	40.00

Deaths reported 2,909: under five years of age 941; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrhœal diseases, whooping-cough, erysipelas and fever) 355, acute lung diseases 554, consumption 320, diphtheria and croup 167, diarrhœal diseases 43, typhoid fever 42, scarlet fever 41, whooping-cough 21, measles 15, cerebro-spinal meningitis 12, erysipelas 6, malarial fever 4, small-pox 4.

From diarrhœal diseases New York 17, Pittsburg 6, Brooklyn 4, Philadelphia, Boston and Cleveland 2 each, Fall River, Springfield, New Bedford and Salem 1 each. From whooping-cough New York 13, Philadelphia and Brooklyn 3 each, Boston and New Bedford 1 each. From measles New York 7, Milwaukee 4, Philadelphia 2, Brooklyn and Fall River 1 each. From cerebro-spinal meningitis New York, Cleveland and Lowell 2 each, Philadelphia, Brooklyn, Washington, Worcester, Lynn and Brockton 1 each. From erysipelas New York 4, Boston 2. From small-pox New York 3, Boston 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,327,846, for the week ending December 2d, the death-rate was 20.5. Deaths reported 5,248: acute diseases of the respiratory organs (London) 737, whooping-cough 129, diphtheria 108, fever 78, scarlet fever 70, measles 61, diarrhœa 45, small-pox (Birmingham 5, Bradford 3, Leicester and Tottenham 2 each) 12.

The death-rates ranged from 13.4 in Croydon to 34.7 in Birkenhead; Birmingham 22.4, Bradford 22.6, Cardiff 20.1, Hull 29.7, Leeds 22.7, Leicester 28.0, Liverpool 33.0, London 27.1, Manchester 33.3, Newcastle-on-Tyne 26.7, Nottingham 29.1, Salford 27.2, Sunderland 24.4, West Ham 25.5, Wolverhampton 30.9.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 16, 1893, TO DECEMBER 23, 1893.

Leave of absence for one month, to commence about December 22, 1893, is hereby granted to MAJOR DANIEL G. CALDWELL, surgeon, U. S. A.

Leave of absence for one month, to take effect about the 20th instant, is granted CAPTAIN W. B. BANISTER, assistant surgeon, U. S. A.

FIRST-LIEUT. MADISON M. BREWER, assistant surgeon, having relinquished the unexpired portion of his sick leave of absence, will report in person to the commanding officer, Fort Monroe, Virginia, for temporary duty at that post.

FIRST-LIEUT. JOHN S. KULP, assistant surgeon, now on temporary duty at Jackson Park, Chicago, Ill., is relieved from further duty at Columbus Barracks, Ohio, and when his services are no longer needed with the troops at Jackson Park, will report in person to the commanding officer, Fort Sheridan, Illinois, for duty at that post.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL OBSERVATION. — A regular meeting will be held at 19 Boylston Place, on Monday, January 1, 1894, at 8 o'clock.

Dr. M. F. Gavin: "The Radical Cure of Hydrocele."

Dr. George W. Gay: "Malignant Disease of the Rectum." Discussion by Dr. Burrell, Dr. F. S. Watson and Dr. J. C. Stedman. Important business will come before the meeting.

JOHN C. MUNRO, M.D., *Secretary.*

THE SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY will hold its regular monthly meeting at 19 Boylston Place on Wednesday evening, January 3, 1894, at 8 o'clock.

Dr. Herbert L. Smith will read a paper entitled "An Experimental Study of the Reduction of Elbow Fractures."

Dr. F. S. Watson will report "Some Cases of Urinary Retention from Unusual Causes."

CHARLES L. SCUDDER, M.D., *Secretary*, 1 Marlborough St.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Obstetrics and Diseases of Women will meet at 19 Boylston Place, on Thursday evening, December 28, 1893, at 8 o'clock.

Dr. F. W. Johnson: "A Report of Seven Cases of Extra-Uterine Pregnancy." Discussion by Dr. A. T. Cabot, Dr. E. W. Cushing, Dr. L. Y. Ingraham and Dr. W. F. Whitney.

Dr. John Dixwell, "A Case of Rupture of Vagina."

Any members having similar cases to report are requested to take part in the discussion.

EDWARD REYNOLDS, M.D., *Chairman.*
GEO. H. WASHBURN, M.D., *Secretary.*

BOOKS AND PAMPHLETS RECEIVED.

Two Cases of Laryngeal Neoplasms. By Robert Levy, M.D. Reprint. 1893.

Medicine as a Career for Educated Men. By William W. Keen, M.D., LL.D. 1893.

How Shall We Make Our Homes Healthy? By Benjamin J. Portugaloff, M.D. Chicago. 1893.

An Economical System of Sanitary Drainage for City and Country. By M. Nadleln, Captain of the Russian Army. Chicago. 1893.

A Manual of Practical Hygiene Designed for Sanitary and Health Officers, Practitioners and Students of Medicine. By W. M. L. Coplin, M.D., Adjunct Professor of Hygiene, Demonstrator of Pathology and Curator of the Museum, Jefferson Medical College, etc., and D. Bevan, M.D., Instructor in Hygiene and Clinical Microscopy, Jefferson Medical College, etc., with an introduction by H. A. Hare, M.D., Professor of Therapeutics, Materia Medica and Hygiene, Jefferson Medical College. With 140 illustrations. Philadelphia: P. Blakiston, Son & Co. 1893.